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ABSTRACT

The study compared the interactions of 15 behavior disordered (BD), 15 learning disabled (LD) and 15 regular education students (grades 4-6), and determined how their verbalizations influenced the verbalizations of others (i.e., the reciprocal nature of interactions). Students and their peers, teachers and aides were observed with a behavior observation instrument designed to monitor the frequency of 14 target behaviors, the direction of the interaction (i.e., given to or received from), and the status of the party involved in the interaction (i.e., peer, teacher, aide). The results indicated that BD and LD students emitted significantly more negative statements to teachers than did regular education students. Teachers of BD students emitted significantly more neutral statements to their students than did LD and regular teachers but the three groups of teachers did not differ in positive and negative statements directed to students. The three groups of peers and BD and LD aides did not differ in positive, negative, and neutral statements emitted with the exception that LD aides emitted more positive statements to their students than BD aides. A correlational analysis indicated that peer-student negative interactions were reciprocal. Neither positive nor negative teacher-student interactions nor positive peer-student interactions were reciprocal. First-order conditional probabilities (i.e., the probability of a statement being followed by a selected response) indicated that BD, LD, and regular students responded to others in a similar manner. Likewise, the three groups of teachers were similar in their responses to students. In all groups, positive, negative, and neutral statements were most likely to be followed by the absence of a response or a neutral response. (Author/CL)

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Reciprocity in the Teacher-Pupil and Peer Verbal Interactions of Behavior Disordered, Learning Disabled, and Regular Education Students

Final Report
#G008101013

Principal Investigators

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by

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August 1982

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Reciprocity in the Teacher-Pupil and Peer Verbal Interactions of Behavior Disordered, Learning Disabled and Regular Education Students

The purpose of this study was to compare the interactions of behavior disordered (BD), learning disabled (LD) and regular education students, and to determine how their verbalizations influenced the verbalizations of others (i.e., the reciprocal nature of interactions). Fifteen students from each diagnostic group (LD, BD, regular education) and their peers, teachers and aides were observed with a behavior observation instrument designed to monitor (a) the frequency of 14 target behaviors, (b) the direction of the interaction (i.e., given to or received from), and (c) the status of the party involved in the interaction (i.e., peer, teacher, aide). The results indicated that BD and LD students emitted significantly more negative statements to teachers than did regular education students. Teachers of BD students emitted significantly more neutral statements to their students than did LD and regular teachers but the three groups of teachers did not differ in positive and negative statements directed to students. The three groups of peers and BD and LD aides did not differ in positive, negative, and neutral statements emitted with the exception that LD aides emitted more positive statements to their students than BD aides. A correlational analysis indicated that peer-student negative interactions were reciprocal. Neither positive or negative teacher-student interactions nor positive peer-student interactions were reciprocal. First-order conditional

probabilities (i.e., the probability of a statement being followed by a selected response) indicated that BD, LD, and regular students responded to others in a similar manner. Likewise, the three groups of teachers were similar in their responses to students. In all groups, positive, negative, and neutral statements were most likely to be followed by the absence of a response or a neutral response. The results are discussed in terms of their implications for educators and for future research.

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CHAPTER I

INTRODUCTION

Most educators would agree that inadequate or inappropriate classroom verbal interactions can result in serious student problems. Student or teacher interaction deficits can hinder both interpersonal relationships and academic achievement. However, in spite of the importance of this area of functioning, very little research has been conducted on possible deficits in verbal interactions of special education students. While research in a variety of areas reveals a good deal about deficits in the functioning of behaviorally disordered (BD) and learning disabled (LD) children (Graubard, 1971; Kauffman, 1977; Nelson, 1971; Patterson, Reid, Jones, & Conger, 1975; Quay, 1979; Quay, 1977; Quay, 1975; Stone & Rowley, 1964; Tamkin, 1960) the topic of verbal interactions has been relatively neglected. Research which has been conducted has either been preliminary in nature, as in the case of LD children (Bryan, Wheeler, Felcan, & Heneck, 1976) or has focused primarily on family interaction patterns (Hetherington & Martin, 1979). Investigations are also noticeably absent in the area of special education teachers' verbal interactions with their students. Research on family interactions suggests that interactions tend to be reciprocal in nature in that positive or negative responses of a person elicit similar positive or negative responses from others (Patterson & Reid, 1979).

However, research has not been undertaken to determine if a similar phenomenon occurs in the classroom.

For the most part, preliminary studies of verbal interactions of LD students have examined peer interactions. One such study, conducted by Bryan and Bryan (1978), compared the verbal peer interactions of 25 LD students to 25 regular education students. Two observers recorded verbal communications, with one observer recording statements made by the subject while the other observer recorded statements made to the subject. The categories of verbal statements were: (1) rejection, (2) requests for materials and information, (3) self-image, (4) helping/cooperation, (5) positive reinforcement/social/consideration, (6) egocentric/self-comments, and (7) reactivity. Statistical analysis revealed that LD students both emitted and received significantly more rejection statements than the nondisabled comparison group. The two groups did not differ significantly on other categories of verbal statements.

In a similar study (Bryan, Wheeler, Felcan & Heneck, 1976) the same observation procedures were used; however the categories of verbal statements differed slightly. The eight categories of verbal statements were: (1) rejection, (2) information source, (3) self-image, (4) cooperation, (5) competition, (6) helping, (7) consideration, and (8) intrusiveness. The results indicated that the LD children emitted significantly more competitive statements. A correlational analysis indicated that children who ask for help get it; that children who are cooperative also render aid; that rejection and competition elicit competition; and that making statements about oneself is related to being helpful toward others.

The limited research on BD children reveals similar results. Raush, Farbman, and Llewellyn (1960) compared the verbal and nonverbal behaviors of hyperaggressive boys receiving residential treatment to two groups of "normal" controls. Sixteen categories of behavior were classified into one of four categories: friendly-dominant (e.g., teach, offer help), hostile-dominant (e.g., boast, refuse), friendly-passive (e.g., cooperate, trust), and hostile-passive (e.g., complain, demand). Behavior was also rated as involved and appropriate, involved and inappropriate, or uninvolved. Statistical analysis indicated the normal controls to be less hostile-dominant, less hostile-passive, and more friendly-dominant to peers and adults.

This limited research suggests that verbal interactions with peers is a problem for both LD and BD children. Yet, the extent of the problem is difficult to determine from these preliminary studies. Nor is there any indication of how LD and BD students compare in their verbal interactions, although such research might provide valuable information on the need for intervention and the need to train teachers to deal with verbal interaction problems.

Several researchers have investigated the reciprocal nature of interactions, although none of these studies have focused on teacher-pupil interaction (Rosenfield, 1967; Pruitt, 1968; Charlesworth & Hartup, 1967; Strain & Timm, 1974; Strain, Shores, & Kerr, 1976). Reciprocity has been defined by Patterson and Reid (1970) as "a dyadic interaction in which person A and B reinforce each other at an equitable rate"(p. 134). The phenomenon has been observed in family interactions with both positive and negative behaviors (Alexander, 1973). Alexander found that defensive behavior on the part of one person tended to elicit defensive behavior from others. This phenomenon is very similar to the "spiraling of aggression" observed by Patterson (1976). According to this position, deviant children both reside in, and contribute to, an aggressive system, in that they both give and receive increasing amounts of aversive stimuli. Aversive interactions tend to elicit a continuing increase in future aversive interactions.

In studying facial and gestural expressions, Rosenfield (1967) found that the expressions of one person greatly influence the interactive behavior of another. Specifically, the results revealed that rates of nonverbal approval for two unacquainted peers were significantly correlated. Likewise, both Pruitt (1968) and Charlesworth and Hartup (1967) observed that those who emit positive responses towards others will receive a similar number of positive responses from others. Finally, Strain and Timm (1976) and Strain, Shores, and Kerr (1976) demonstrated that increasing the positive social behavior of a target subject would result in a concomitant increase in positive social behavior by peers.

Based on previous research, it seems reasonable to hypothesize that teachers and pupils will respond to verbalizations in a reciprocal manner. Since exceptional students often interact in disruptive and inappropriate ways, reciprocal teacher interactions could interfere with the goals of intervention. It is very likely that aversive students might tend to elicit aversive interactions from teachers, resulting in a spiraling of negative interactions. Such an event might render the teacher less effective and would also make the classroom an aversive environment, thereby affecting the entire population of the classroom. For these reasons, the nature of teacher-student interactions needs to be investigated to determine the extent of reciprocal interactions, the need for intervention and teacher education, and possible strategies for producing suitable change.

Purpose

The purpose of this study was to compare teacher-pupil and peer verbal interactions of BD, LD, and regular education students. This study specifically investigated the frequency, type (e.g., positive or negative), and the reciprocal nature of verbal interactions to determine the verbal interaction characteristics of teachers and pupils, the possible etiology of poor interactive behavior, and possible areas for intervention.

CHAPTER II

REVIEW OF THE LITERATURE

This section will survey the literature related to the verbal interactions of behavior disordered (BD), learning disabled (LD), and regular education students with teachers and peers. Specifically, the topics to be covered are (a) the history of measuring classroom behavior by systematic observation, (b) family interactions, (c) teacher-pupil interactions, (d) peer interactions, and (e) the reciprocal nature of social interactions.

History of Measuring Classroom Behavior by Systematic Observation

According to Medley and Mitzel (1963), the earliest studies to employ systematic observation for measuring classroom behavior were attempts at measuring pupil participation as part of supervisor ratings of teacher performance. In 1914, Horn (cited in Medley & Mitzel, 1963) proposed a simple procedure for this purpose whereby a circle was recorded in the appropriate space on a seating chart for each teacher's request to recite, while a square was recorded each time a pupil responded. This early study, although simple by today's standards, was important in stimulating further research of this type and leading to the development of more complex observation procedures.

Teacher Effectiveness

Following an elaboration of pupil participation observation, attention was turned toward measuring effective teacher behavior by attempting to identify patterns of behavior which distinguished effective from ineffective teachers. In one such study, Jayne (1945) selected 11 items from an original sample of 184 items and combined them into scales which were used to correlate classroom behavior with teacher effectiveness. An example of one of these scales, the Index of Meaningful Discussion, contained the following seven items.

1. Percent of fact questions on unprepared material
2. Percent of thought questions on unprepared material
3. Percent of thought questions dealing with local situations
4. Number of participations growing out of spontaneous pupil discussion
5. Number of teacher explanations
6. Number of times teacher presented factual information
7. Number of times teacher raised a question as to correctness of a pupil response

Jayne (1945) concluded that although none of the specific items correlated with effectiveness of teaching, it was possible to combine the items into scales which correlated with effective outcomes.

In terms of classroom behavior, "classroom climate"

(Medley & Mitzel, 1963) has historically received the most attention from users of direct observation, while also being the area in which observation has been applied most successfully. Thus, social psychologists took an early interest in classroom behavior and pupil interactions with both peers and teachers. This line of research can be categorized into three types: (a) observations of a single child and plotting movements on a floor plan of the nursery-school classroom, (b) recording every incident or physical contact made by a child; and (c) stenographic records of a child's vocalizations as well as everything said to the child in an effort to obtain indices of the degree to which the child addressed his/her attention to others, self, and material objects.

The next general area of research focused on teacher contacts with children. Pupil behavior was used to detect the effects of teacher behavior on pupils. Classroom climate was defined in dimensions of direct versus indirect influence, teacher centered versus learner centered, or dominative versus integrative. Flanders (1970) developed one of the most sophisticated procedures for observing climate. This research will be discussed in a later section.

During the 1950's, researchers became involved in measuring multiple dimensions of classroom behavior by focusing on both effective teacher behaviors and social interactions. One of the most widely used measures at this time was the Observation Schedule and Record (OScAR) developed by Medley, Schluck, & Ames (1968). OScAR was designed to provide quantitative data regarding behaviors of beginning teachers, so that their behaviors could be correlated with a number of other variables. The OScAR technique requires the coder to observe the classroom environment for 30-minute periods in sequences of 5-minute intervals. Verbal behaviors are coded as "statements" and "interchanges." "Statements" are verbal behaviors that do not elicit a response, while "interchanges" are those interactions between teacher and pupil which are initiated with a question. Thus, an interchange contains three parts: (a) an entry question, which is coded as divergent, convergent, or elaborating; (b) a pupil response; and (c) a teacher evaluation which is coded as supportive, approved, criticized, neutrally rejected, accepted, or not evaluated. The OScAR procedure also includes several procedures for evaluating teachers' procedural and managerial behaviors.

Applied Behavior Analysis

With the advent of social learning theory and applied behavior analysis, systematic observation in the classroom became increasingly common and, consequently, the number of studies employing systematic observation grew rapidly. Hallahan and Kauffman (1976) summed up the value of applied behavior analysis:

> One of the most important features of applied behavior analysis, and possibly its greatest contribution to education, is direct, continuous, and precise measurement of behavior. Excellent teachers have for many years known and used

> effective instructional techniques with exceptional children. It is only recently, however, that children's behavior and the effects of teaching methods have been measured in such a way that truly adequate evaluation of educational methodology is possible (p. 58).

A number of methods exist for recording behavior. Sulzer-Azaroff and Mayer (1977) reported the following two general types of techniques: (a) measures of behaviors which produce a permanent product, and (b) measures of behaviors which are transitory in nature. Measures of permanent product require that the behavior leave physical evidence in the form of an enduring product, such as written assignments, dressing, and completed chores.

Transitory events, on the other hand, are more difficult to measure because they do not leave permanent products. Three procedures may be used to measure transitory events. The first of these is event recording, which consists of counting the number of times a behavior occurs within a specific time period (e.g., counting the number of times a student requests help from a teacher in a 20-minute reading period). Duration recording, a second transitory measurement procedure, requires that the observer monitor the length of time a behavior occurs within a specific period of time. Thus, duration recording might be an appropriate procedure for monitoring the amount of time a student is on-task during a math period. The final procedure, interval recording, specifies that the observation period be divided into a number of short time intervals. Behavior is then recorded in one of three ways. With a momentary time-sampling system, behavior is recorded as occurring or not occurring the moment the interval ends. Using whole-interval time-sampling, the response must be emitted throughout the interval for its presence to be scored. Finally, partial-interval time-sampling systems require observation of only a single occurrence of the response within the interval for a behavior to be scored.

One of the most frequent classroom applications of the above procedures is teacher observation and recording of an individual student's behavior. Thompson, Iwata, and Poynter (1979) provided an example of this practice in a study designed to modify the pathological tongue thrust of a ten-year-old severely retarded boy. A partial-interval observation system was used throughout the study to assess changes in four target behaviors: tongue out, food expulsion, chewing, and pushback. Continuous 10-second intervals were divided into 7.5-second observation periods followed by 2.5-second recording periods. In addition to the interval data, an observer measured the grams of food expelled during each meal.

In addition to assessing student behavior, observation procedures can be employed to measure teacher behavior as demonstrated in a study by Hall, Lund, and Jackson (1968). These authors investigated the effects of contingent teacher attention on the study behavior of six elementary-age students who had high rates of disruptive behavior. Three behaviors were defined and observed: study behavior, teacher verbalization, and teacher presence within a 3-foot proximity of the student.

A partial-interval observation system with 10-second intervals was used to simultaneously record the behaviors of the teachers and the students.

Self Monitoring

Self-monitoring is another procedure which has enjoyed increased classroom popularity as indicated in a review of the literature by Rosenbaum and Drabman (1979). A main concern of these studies has been the development of procedures for assuring high levels of accuracy in self-recorded target behaviors. Such procedures have consisted of awarding students bonus points for matching or being within a specified range of an external agent's records and penalizing them for being beyond that range. Although these procedures have resulted in high reliability levels for self-observed behaviors, Rosenbaum and Drabman concluded that further assessment of accurate versus inaccurate self-recording is needed to determine which, if any, situations require training for reliable self-recording. Also of note was the finding that self-recording appears to have either desirable effects or no effect on target behaviors. Furthermore, self-recording does not need to be accurate to produce desirable changes in the target behaviors (Rosenbaum & Drabman, 1979).

Group Observation

Several systematic observation procedures enable monitoring of multiple behaviors or groups of students. Werry and Quay (1969) developed one such procedure which uses a partial-interval observation technique to monitor 12 operationally defined classroom behaviors (e.g., on task, out of seat, vocalization, positive child-initiated contact, and daydreaming). The recorder observes one child at a time for a total of 22 minutes. Behaviors are observed for 20-second periods and then recorded during the subsequent 10-second interval.

Groups of students might also be evaluated by the use of spotcheck methods. The Planned Activity Check (PLA-Check) is such a method designed to gauge the participation of groups or individuals in training activities (Doke & Risley, 1972). This measure involves counting the number of students who are involved in planned activities at certain intervals of time. For example, PLA-Check might involve counting, at one-minute intervals, the number of students appropriately using a selected material. Doke (1976) reported that the data generated by this procedure may be used to identify times during activities when participation levels drop so that those uninteresting segments of the activity might be modified. The data might also be used to obtain individual participation levels or attention to task.

Situational Determinants of Behavior

The procedures discussed thus far have been designed to allow for the systematic observation of specific target behaviors. Another observational technique, which also has its roots in applied behavior analysis, involves analysis of streams of behavior to assist in identifying situational determinants of a child's behavior. The procedure is designed to provide information necessary to functionally analyze a student's behavior by focusing on the antecedent stimulus events, the student's responses, and the consequent social events.

This "three-term contingency" procedure, which has been described in detail by Gelfand and Hartmann (1975) requires that the observer divide an observational sheet into three columns: antecedent, response, and consequence. The observer then records, under the appropriate column, the verbal and nonverbal behaviors directed to and emitted by the target student. An example of the procedure might be:

Antecedent	Response	Consequence
John says, "Mary come here."	Mary runs to John.	John hugs Mary.

Abbreviations and shorthand are used to simplify recording behavior.

Summary

Over a 65-year period, systematic classroom observation has become increasingly elaborate and scientific primarily as a result of the impact of applied behavior analysis. Both the early studies and the later studies cited here were concerned with the effectiveness of teacher behaviors; however, whereas early studies focused on observing teacher behavior, later investigations focused on changes in student behavior as a function of teacher intervention. In addition, the reliability or accuracy of observational data was of greater concern in later studies. However, the problems related to observational data are far from resolved, as evidenced in an article by Johnson and Bolstad (1973) which addressed methodological issues and problems involved in naturalistic observation. But as a growing number of researchers turn their attention to the problems of observer bias, observer reactivity, and validity of observational data, systematic observation methodology will continue to be improved and refined.

Family Interactions

The literature on social interactions is inundated with observational studies of family interactions. A sampling of the more recent of these investigations will be reviewed in the following section. Many of these studies focus on families with emotionally disturbed children, but studies also examine interactions of families with learning disabled, mentally retarded, and normal children.

Behavior-Recording Procedures

Obtaining observational data in studies of parent-child interactions can be carried out in a number of ways depending on one's preferences (Lytton, 1971). One procedure involves rating behavior after the observation period. Generally, this type of rating is conducted on global characteristics such as anger. Another procedure is a narrative style summary, which entails writing a summary of the interaction that was observed. A third procedure consists of precoded behavior categories from which specific behaviors are selected for observation prior to the observation period. A fourth technique, selective narrative records, involves recording only selected aspects of an interaction, such as attempts to influence others, and then writing a narrative description about that particular aspect, following the observation period. A fifth procedure consists of using a specimen record. This technique, which has been used extensively by Barker and Wright (1955), requires writing during the observation period a detailed description of everything observed.

Observer Effect

Each of the above procedures has its own advantages and disadvantages, and none of them are free from problems. One common problem in most observational procedures is the effect of the observer. Zeigiob, Arnold, and Forehand (1975) noted that an observer does have an effect on parent-child interactions. Twelve mother-child pairs were observed in a laboratory setting under informed and uninformed conditions. In the uninformed condition, the mother-child pairs were told to wait in the waiting room while the experimenter checked on the availability of a room. While the pair waited for 10-minutes, their interactions were observed. After the 10-minutes, the pair was taken to a laboratory playroom for informed observation. Here the experimenter explained that the purpose of the study was to examine how children play in the presence of an adult and that the mother could do as she wished with her child. A counterbalance group was exposed to the same conditions in reverse order. Six categories of maternal behavior were observed: out of contact with child, playing, positive-verbal interaction, negative-verbal interaction, structuring, and helping. Results indicated that, during informed as opposed to uninformed observations, mothers played with their children more, were more positive in their verbal behavior, and structured their children's activities more. Zeigiob et al. (1975) noted that these results were in agreement with previous research indicating that informed observations increase positive behaviors. Since most of the current literature was carried out under informed consent conditions, consideration should be given to the possible effect of the observer.

Interactions in Normal Families

Johnson, Wahl, Martin, and Johansson (1973) studied the family interactions of 33 normal families in order to determine the extent of deviancy in nonexceptional children. The study employed an observational coding system which utilized 35 distinct behavior categories to record all the behaviors of the target child and all the behaviors of other family members who interacted with the child. The results indicated that over 96% of the average child's behaviors were nondeviant and that even the most deviant child in the sample displayed appropriate behavior 88% of the time. Findings also showed that deviant children received more active responding than did less deviant children. These results support notions about reciprocity in social interactions as well as coercive interaction. That is, the deviant child is seen to more frequently engage in deviant behavior, and, in turn, receives more negative consequences.

In a study using almost identical procedures, Wahl, Johnson, Johansson, and Martin (1974) found similar results. Although families were found to respond more positively to nondeviant behavior than they did to deviant behavior, and more negatively to deviant than to nondeviant behavior, families were more positive than negative, regardless of a child's preceding behavior. Parents were significantly more likely to respond to deviant behavior in a positive manner than were siblings. As in the previous study (Johnson et al., 1973), results were consistent with theories of reciprocity in that positive behaviors yielded positive consequences, while negative behaviors yielded negative consequences.

In an effort to investigate infant preferences for interaction with mother versus father, and to investigate similarities and differences in maternal and paternal behavior, Belsky (1979) observed 40 middle-class families with infants 15 months of age. Observations were conducted in the parent's homes on two separate weekends for two hours each day. The results revealed more similarities than differences in maternal versus paternal behavior. Parents showed a slight preference for interacting with same-sex children, and both parents showed more active parenting when alone with their child than when in the presence of the spouse.

Interactions in Families with Disturbed Children

Interactions of families with emotionally disturbed children have also been investigated. Beakel and Mehrabian (1969) tested the hypothesis that incongruity between verbal and nonverbal components of parental messages contributes to pathology. To this end, the interactions of two groups of families with adolescents exhibiting two degrees of psychopathology were observed and video taped. The results did not support the above hypothesis. However, results did suggest that parents of more disturbed adolescents verbally communicated more negative attitudes toward the adolescents than did parents of less disturbed adolescents.

A major concern within the area of family interactions has been the power structure within families. Alkire (1969) designed a study to assess social power and communication within families of disturbed and nondisturbed preadolescents. As part of the study, disturbed and nondisturbed families were required to describe novel graphic designs over a network of telephones. Through a process of asking questions and receiving further information, two listening members of the family made individual guesses as to the design being transmitted. Overall, there was evidence of role reversals in disturbed families in that mothers in the disturbed families behaved like the fathers in the normal families, and fathers in the disturbed families were more like the mothers in normal families.

Another study on power relations in emotionally disturbed families was conducted by Schuham (1970). Fourteen normal and fourteen disturbed families, matched on ten variables, were asked to reach a decision on four problem situations about which they had initially disagreed. Results suggested that disturbed families were impaired in their ability to reach group decisions. Family members were found to be relatively equal in terms of frequency of decisions "won" and amount of support received, and to be impaired in coalition formation. Also, these families were characterized by weak parental relationships. Nonhandicapped families, on the other hand, were able to form coalitions and reach mutually acceptable solutions. Furthermore, a clear power structure emerged in which the father was ascendary, the mother ranked second, while the child was last.

Murrell and Stachowiak (1967) studied power, consistency, and rigidity in the interactions of clinic (i.e., receiving psychiatric treatment) and nonclinic families. The pattern of "who talks to whom" was studied in 22 families as they interacted on four tasks. The tasks included (1) planning a family activity, (2) answering a series of 11 questions, (3) making up stories to TAT cards, and (4) writing as many adjectivies or descriptive phrases as they could which would describe their family. Results revealed that the patterns of "who talks to whom" were highly stable for families in different situations over time. The leadership patterns of the two groups of families differed in that parents of nonclinic families exerted more influence than did parents of clinic families; in clinic families older children had more influence than their counterparts in nonclinic families.

To determine any patterns of day-to-day interactions that distinguished abusive and neglectful families from families with no known history of abuse or neglect, Burgess and Conger (1978) collected observational data in the homes of 17 abusive, 17 neglectful, and 19 control families. The results indicated that overall, abusive and neglectful parents demonstrated lower rates of interaction and were more likely to emphasize the negative in their relationships with their children. No significant differences were found in the behavior of the children in the three groups. Although parents in the two experimental groups differed from controls in their interactions with children, rates of interaction between spouses did not differ between groups.

The difficulties of drawing any clearcut conclusions from the myriad of results from family-interaction studies is emphasized in Jacob's (1975) comprehensive review of family interactions in disturbed and normal families. A total of 75 direct-observation studies comparing family interactions in schizophrenic, disturbed nonschizophrenic, and normal families were systematically evaluated in this review. In one area, dominance, 17 comparisons were made between schizophrenic and normal families. Of those 17 comparisons, 7 revealed an absence of difference between the two groups of families, 5 comparisons were inconclusive, 1 comparison suggested that fathers in schizophrenic families were more dominant than normal fathers, while 4 comparisons indicated that normal fathers were more dominant than fathers in schizophrenic and nonschizophrenic disturbed families, and mothers in schizophrenic families and children in normal families were more dominant than their counterparts. In the area of conflict, affect, and communication-clarity similar conflicting results occurred in comparisons of schizophrenic and normal families and nonschizophrenic disturbed and normal families. These conflicting results led Jacob (1975) to conclude:

> It would appear family interaction studies, although based on a potentially sound methodological strategy, have not yet isolated family patterns that reliably differentiate disturbed from normal groups ...Specifically, many of the observed inconsistencies across family interaction studies may be a function of differences in (1) diagnostic status of experimental groups, (2) measurement techniques, (3) data analysis procedures, and (4) demographic characteristics of family groups (p. 56).

Another extensive review of the literature on family interactions in families with emotionally disturbed children can be found in Hetherington and Martin (1979). The review discusses methods for assessing interactions and family interaction patterns among families with children displaying various classifications of psychopathology (i.e., conduct-disorder, delinquency, psychosomatic disorders, and anxiety-withdrawal disorders).

Interaction in Families with Children of Other Exceptionalities

Studies have also investigated mother-child interactions in families with mentally retarded and high risk preschoolers. A comparison of younger (12 to 27 months) and older (30 to 46 months) high-risk preschoolers to same-age normal controls demonstrated that several aspects of mother-child interaction differentiated older, but not younger, high-risk and contrast children (Wilton & Barbour, 1978). Older contrast children were found to interact more often with their mothers, to spend more time in learning activities with their mothers, and to be more engaged in highly intellectual activities than did their high-risk counterparts. A similar study by Kogan, Wimberger, and Bobbit (1969) showed that mothers of young retarded children exerted more control over their children than did contrast mothers.

Similar investigations have been undertaken on the interactions of mothers with their LD or hyperactive children. In a series of studies, Campbell (1973, 1975) reported that mothers of hyperactive boys provided more direct help, encouragement, and structure than mothers of reflective and impulsive children. In a comparison of hyperactive, LD, and normal boys, hyperactive boys were found to interact more often than LD or normal controls, while mothers of hyperactive children intervened more frequently than did the mothers of LD and normal boys. Humphries, Kinsbourne, and Swanson (1978) investigated the effects of drug stimulants on cooperation and social interaction between hyperactive children and their mothers in a double blind study. Results revealed that hyperactive children and their mothers praised each other more when the children were in a medicated as opposed to a placebo state. In addition, mothers gave fewer directions to children about how to complete tasks while their children were on medication.

Summary

As indicated above, numerous studies have investigated the interactions of exceptional children with their family members. Among these, several studies focused on the power relationships within families with emotionally disturbed children. Results suggested that the power structure in families with disturbed children differed from the power structure in normal families. However, Jacob's (1975) review of the literature on family interactions revealed inconsistent results in all areas of study, and, as of yet, no clear patterns of family interaction have been isolated.

Studies on other types of exceptional children indicated that hyperactive children interacted more frequently with their mothers than did LD or normal children. Also, mothers of hyperactive children intervened more frequently than did mothers of LD and normal controls. Finally, mothers of hyperactive children responded differently to their child when he was on medication.

Teacher-Pupil Interactions

Withall and Lewis (1963) conducted a comprehensive review of the literature on social interactions in the classroom. According to these authors, a variety of procedures have been employed over the years to investigate teacher-pupil interactions and their effects. Initial studies in this area dealt with the arrangement of learning experiences and the impact of these arrangements on successful outcomes. Over time, studies began to focus on the influence of group life and the influence of different types of groups on learning, problem-solving, and decision making. Much of this research made use of interaction analysis in teacher education (Amidon & Hough, 1967). Thus another trend within the study of social interaction in the classroom analyzed teacher-pupil interactions by means of questionnaires and rating scales based on traits and qualities which educational supervisors considered necessary and desirable.

By far the largest area of research on teacher-pupil interactions has focused on group and social-emotional climate in the classroom. The present section will review recent research in this area with particular attention to studies involving exceptional students.

Effects of Teacher Behaviors

One frequently used teacher-pupil interaction analysis instrument was developed by Flanders (1970) to focus on direct and indirect teaching behavior. Direct teaching behaviors were classified as lecturing, giving directions, and criticizing or justifying authority, whereas indirect teaching behaviors included asking questions, accepting or using pupil ideas, praising and encouraging, and accepting feelings. The instrument also measured pupil-initiated interactions, pupil response, and silence. Results of studies employing this instrument suggested that although the amount of indirect teaching is small, the presence of indirect teaching is related to positive student attitudes, while the absence of such behavior is related to negative student attitudes (Flanders, 1970) Indirect teaching is often also associated with increased learning; however, to date research in this area is inconsistent. As Flanders pointed out, most research is correlational rather than causal and, therefore, does not determine whether indirect teaching behavior leads to more learning and positive attitudes, or whether brighter students who learn more and have more positive attitudes provide teachers with opportunities to be more direct.

A laboratory study conducted by Amidon and Flanders (1967) may provide some information relevant to this question. The purpose of their study was to determine the effects of direct versus indirect teacher behavior. Specially trained teachers role-played both direct and indirect teaching styles in a laboratory experiment. The subjects were 140 eighth graders who had been determined to be dependency prone. Students were compared on the basis of pre- and post-achievement tests in geometry. The results indicated that pupils taught by indirect teachers learned more than did children taught by direct teachers. Indirect teachers provided fewer directions, less criticism, less lecturing, more praise, and asked more questions.

Flanders' instrument has also been used to study naturally occurring events in regular elementary classrooms. One such study was designed to determine the kinds of teacher-pupil interaction patterns that are present in elementary classrooms (Furst & Amidon, 1967). A total of 25 classrooms at each of six grade levels were observed. The ratio of direct to indirect teacher statements revealed that in grades one and two teachers used more indirect than direct statements. A slight increase was noted in the number of direct teacher statements in third and fourth grade, and by fifth and sixth grade teachers used more direct than indirect statements. The percentage of student talk was lowest in fifth and sixth grade, while the percentage of silence increased from 15% in first grade to 25% in sixth grade. The percentage of teacher talk showed few changes over the elementary grades; however, one specific type of teacher talk, lecturing, demonstrated considerable change with an increase from a low of 9% in first grade to a high of 21% in fifth and sixth grade. These results led Furst and Amidon to the following conclusion:

> Teachers at different grade levels hold varying assumptions about the teaching-learning process. Apparently, primary grade teachers feel that children at that level can learn best via the question-answer technique and that lecturing or giving information is far less appropriate. On the other hand, intermediate-grade teachers apparently conceive of lectures as most conducive to learning ([illegible] 173, 1967).

Teacher Interaction with Exceptional Students

Flanders' interaction instrument has also been used to analyze pupil-teacher interactions in classrooms for exceptional students. Semmel, Sitko, and Kreider (1973) used the same system to study the impact of teacher interactions with trainable mentally retarded (TMR) pupils on pupil gains in communication skills. Classroom interactions of six teachers whose TMR pupils revealed high gains in communication were compared to interactions of six teachers whose students showed little or no gain. The Cain-Levine Social Competency Scale was used to measure communication skills. Results demonstrated that high-gain teachers were significantly less restrictive, more indirect, less critical, more accepting, and used more pupil ideas than did low-gain teachers. Furthermore, high-gain teachers tended to have less teaching experience and were generally younger than low-gain teachers.

A similar study (Dembo, Yoshida, Reilly, & Reilly, 1978) examined teacher-student interactions in self-contained classrooms for educable mentally retarded and for educationally handicapped students. Interactions were analyzed using the Brophy-Good Interaction Observation System which measures type of teacher questions (i.e., product, process, choice, and self-reference), and teacher feedback to correct and incorrect student responses (i.e., praise, criticism, supply answer, repeat question, rephrase question, and give clue). The authors concluded that the basic teacher-student communication pattern was characterized by the teachers' attempts at maximizing success and minimizing failure. This was accomplished by directing product questions to selected students. Only 7% of the questions were process type, that is requiring the student to explain something. This pattern closely resembles the behavior of most regular-education teachers.

Fink (1972) utilized another comprehensive observational system in an intensive study of verbal and nonverbal behaviors of teachers and students in classes for BD students. The system, which used a 10-second partial-interval observation system, measured 18 teacher behaviors and 17 student behaviors in 15 elementary BD classrooms. Teacher behaviors included giving, feedback, planned ignoring, asking, punishing, rewarding, and changing tasks. Student behaviors included on-task, verbal interaction with teacher and peers, refusal, daydreaming, verbal aggression, and physical aggression. The teacher behaviors most frequently observed were feedback (26%), giving (17%), planned ignoring (14%), and asking (11%). The most frequent student behaviors were on-task (60%), verbal interaction with teacher (9%), resistive/refusal (7%), and verbal interaction with peers (4%). Less that 1% of the students' behaviors consisted of verbal and physical aggression.

Lambie (1978) used Fink's observation system in a similar study which compared teacher management techniques for conduct-disordered pupils in regular and special classrooms. Fifteen pairs of special education teachers and conduct-disordered students in BD classrooms were compared to fifteen pairs of regular education teachers and conduct-disordered students in regular education classrooms. Twelve teacher behavior categories and nine pupil behavior categories were measured using a five second partial-interval observation system. Results demonstrated that both BD and regular teachers relied heavily upon demand as a behavior management technique. However, demand was not found to be one of the most effective techniques for increasing on-task behavior. The most effective technique for increasing the length of time a pupil remained on-task was redirection; as would be expected, both groups of teachers relied heavily upon this technique. Data further indicated that the on-task behavior of conduct-disorder pupils in both regular and BD classes did not differ significantly from the 77% typical of normal students. However, pupils in BD classes were found to have significantly higher on-task behavior than conduct-disordered pupils in regular classes.

Teacher-pupil interactions have been analyzed for a variety of reasons. The greatest research interest has been concerned with group and social-emotional climate in the classroom. Flanders' (1970) observational system for measuring classroom climate has been used in studies of both regular and exceptional students. For the most part, results have shown that indirect teaching is related to more positive attitudes and better learning for both regular and mentally retarded students. Studies with BD students suggested that special education and regular teachers engaged in similar teacher-pupil interactions and employed similar classroom management techniques.

Peer and Adult Interactions

The following overview of the literature on children's interactions with peers and adults includes studies which have not already been covered under family interactions or teacher-pupil interactions. The studies evaluated both "normal" and exceptional children.

Studies of the peer social interactions of exceptional and nonhandicapped children are generally of two types: (a) evaluations of typical patterns of social interactions in these two groups of children and (b) comparisons of the social interactions of exceptional and nonhandicapped students. The former is the more common of the two types of studies.

Nonhandicapped Students

In a study of typical interactions of nonhandicapped preschool students, Reuter and Yunik (1973) monitored frequency of peer and adult social interactions, mean duration of social interactions, and amount of negative behaviors for three- and four-year-old students. Students were enrolled in one of three school settings: a Montessouri nursery school, a university laboratory preschool, and a parent cooperative nursery school. On the average, students engaged in interactions with peers and adults at a rate of 30% to 40% during free-time periods. Peer interaction increased with age as four-year-olds were found to spend a significantly greater percentage of their time in peer interactions than did the three-year-olds. Interactions with adults showed a nonsignificant increase with age.

In a similar study of preschool play behavior, preschool play norms in the late 1960's were compared with norms collected more than 40 years ago (Barnes, 1971). Six categories of play behavior were observed: unoccupied play, solitary play, onlooker, paralled play, associative play, and cooperative play. The results suggested that children in 1969 were much less socially oriented in their play activities than children 40 years ago. The mass media and the solitary types of toys were advanced as possible explanations for the change in play behavior over time.

The peer interactions, general behaviors, and child-teacher interactions of 42 nonhandicapped second graders were observed in a study of children's social behavior in a classroom setting (Travis, 1977). In comparison to boys, girls were found to engage in more verbalizations with same-sex peers and more cooperation with same-sex peers. Boys and girls appeared to be at the same level of social sophistication with respect to opposite-sex peers.

Other social interaction studies have been undertaken to determine the relationship between social interactions and other variables. For example, the relationship between popularity and social skills and social interactions was analyzed in a study of third- and fourth-grade nonhandicapped students (Gottman, Gonso, & Rasmussen, 1975). A sociometric instrument was used to determine popularity, while social skills were assessed by a test measuring ability to label emotions, knowledge of how to make friends, giving help, and role-taking ability. Finally, a 15-category naturalistic observation system was used to assess social interactions. Popular and unpopular children differed in their knowledge of how to make friends, and popular students both distributed and received more positive reinforcement, and spent less time daydreaming.

A similar study of popularity was designed to examine the relationship between peer reinforcement and social status (Hartup, Glazer, & Charlesworth, 1967). Two classes of 4-year-old preschool children served as subjects in this study which utilized a sociometric instrument to measure social status. Eight target behaviors, classified as either reinforcers or negative behaviors, were measured by observational procedures. While Grossman et al. (1975) found that popular children received more reinforcement from peers, the results of this study suggested that popular children give more positive reinforcement. Thus, social acceptance was significantly correlated with the frequency of giving positive reinforcement, while rejection was significantly correlated with the frequency of negative behaviors.

Interactions Among Handicapped and Nonhandicapped

Behavior disordered children's typical social interaction patterns have also received attention. A study by Sanson-Fisher and Jenkins (1978) analyzed interaction patterns between inmates and staff in a maximum-security institution for delinquent girls. Participants included three paraprofessional staff members and five delinquent girls. A total of 28 categories of behavior were observed and recorded for each participant. The results indicated that both appropriate and inappropriate behaviors received a high proportion of positive attention from staff and peers. On the other hand, therapeutic opportunities offered by staff were met with negative attention from the delinquent group in 75% of the cases.

Integration of handicapped children into the "mainstream" has been the subject of numerous studies. One aspect of this topic involves the interactions among handicapped and nonhandicapped students. Two studies of handicapped-nonhandicapped interactions focused upon preschool-age children and mentally retarded students. In a study of the verbal and nonverbal social behaviors of mentally retarded and normally developing children in a free-play situation, Porter, Ramsey, and Trembly (1978) found normally developing children to maintain the closest mean proximity to other normally developing children. Moreover, normal children engaged in several categories of social behavior with other normal children significantly more often than with retarded children. Retarded children, on the other hand, displayed no consistent preferences for retarded versus nonretarded peers. Guralnick and Paul-Brown (1977) obtained similar results in that their nonhandicapped subjects also spoke more frequently to more advanced children. Nonhandicapped preschool children also adjusted their speech in accordance with peers' developmental levels. Thus, the mean length of their utterances was shorter for lower functioning kids and their verbalizations were repeated more often for more handicapped peers.

Another significant aspect related to mainstreaming of handicapped students is their interactions compared with those of nonhandicapped children. Both BD and LD students have been compared along these lines. Raush (1965) compared the interactions of hyperaggressive boys in early treatment, normal controls, and normal Norwegian boys. An observation instrument developed by Raush, Dittman, and Taylor (1959a) was used to assess interactions. As previously pointed out, the instrument consisted of 16 categories of behavior classified as hostile-dominant, friendly-dominant, hostile-passive, and friendly-passive. Behavior was observed in six settings: breakfast, other meal times, unstructured group activities, structured group activities, snack time, and group instruction. As was true in an earlier study, (Raush, Dittman, & Taylor, 1959b), situation was found to have an affect on behavior. Unfriendly behavior was much more frequent in some settings (e.g., game situations) than in others (e.g., mealtimes). Psychological status also had an affect. Compared to normals, hyperaggressive boys produced fewer friendly acts as stimuli for their peers; friendly acts were followed by unfriendly behavior much more frequently in early-treatment hyperaggressive boys (45%) than in later-treatment hyperaggressive (19%) and normal boys (8%).

In a similar study, Raush, Farbman, and Llewellyn (1960) found normal controls to be less hostile-dominant and less hostile-passive toward both adults and peers than were hyperaggressive boys. Normal controls were also more friendly-passive toward adults and peers than were hyperaggressive boys. The friendly-dominant types of behaviors of controls and hyperaggressive boys did not differ.

Interaction of LD Students

The interactions of LD students as compared to normal controls have been investigated in a series of studies by Bryan and associates (Bryan, 1974; Bryan & Bryan, 1978; Bryan, Donahue, & Pearl, 1981; Bryan, Donahue, Pearl, & Sturm, 1981; Bryan, Wheeler, & Felcan, 1976; Spekman, 1981). Bryan, Wheeler, and Felcan (1976) compared the communications of 17 LD and 17 normal control subjects from third, fourth, and fifth grade. Eight categories of statements were observed using an even-recording observation procedure in which one observer recorded all statements made by the target subject and a second observer recorded all statements made by peers to the subject. The eight categories of statements were: rejection, information source, self-image, cooperation, competition, helping, consideration, and intrusiveness. Results revealed that LD students emitted significantly more competitive statements than did controls, while control subjects received significantly more consideration statements than LD students. Although nonsignificant, LD children tended to emit more rejection and fewer helpful statements than was the case for the normal controls.

These findings are consistent with other results which indicate that LD students differ from normal controls in their interactions with peers. Bryan (1974) found that LD and normal comparison children did not differ significantly in the total proportion of time spent interacting with teachers and peers; however, LD student's verbal initiations were significantly more likely to be ignored by both teachers and peers. Likewise, Bryan and Bryan (1978) found that in comparison to nondisabled classmates, LD students emitted significantly more nasty statements to peers and subsequently received significantly more rejection statements from peers.

Interactional deficits of LD students have also been found in terms of small-group problem-solving skills (Bryan, Donahue, & Pearl, 1981), conversational skills (Bryan, Donahue, Pearl, & Strum, 1981), and in dyadic communications requiring an exchange of information (Spekman, 1981). In small-group problem-solving situations, LD students were less likely to disagree with classmates, less likely to argue with classmates, and less likely to engage in "conversational housekeeping" than were their nondisabled peers (Bryan, Donahue, & Pearl, 1981), suggesting that LD children were less persuasive than nondisabled children apparently as a result of their assuming a submissive role. An examination of conversational competency indicated that LD students were not as adept as nondisabled children in their ability to initiate and substain interaction (Bryan, Donahue, Pearl, & Strum, 1981). Specific behaviors which might have accounted for this difference included the LD students' tendency to ask fewer questions and their ineptness to produce open-ended questions. In dyadic communications requiring an exchange of information, LD students were less successful than nondisabled peers in both speaker and listener roles (Spekman, 1981). As speakers, LD students exchanged significantly lower levels of information than nondisabled peers. As listeners, LD students were less apt to ask productive questions, that is, questions designed to gain new information.

Summary

Studies of peer interactions have followed three lines of investigation: (a) evaluations of typical interactions of nonhandicapped students; (b) interactions among handicapped and nonhandicapped students; and (c) comparisons of interactions of handicapped and nonhandicapped children. Studies on typical interactions of nonhandicapped students revealed that girls, in comparison to boys, engaged in more verbalizations and cooperation with same-sex peers, but that social sophistication with opposite-sex peers was the same for both boys and girls. In addition, these studies indicated that interactions with peers increased with age, and that popular children demonstrated more knowledge of how to make friends.

In investigations of interactions among handicapped and nonhandicapped children, nonhandicapped preschoolers tended to interact with other nonhandicapped children rather than with handicapped peers, while nonhandicapped children showed no preference for handicapped or nonhandicapped peers.

Nonhandicapped children were also found to adjust their speech in accordance with peer developmental levels.

Comparisons of interactions of handicapped and nonhandicapped children demonstrated that the interaction patterns of these two groups clearly differ, although no consistent patterns have emerged. In a series of studies, nonhandicapped children were found to be more friendly and less hostile than their handicapped counterparts. Another series of studies, which compared LD to normal controls, indicated that LD children were more likely to make competitive statements, rejection statements, and more nasty comments. In turn, LD students received more rejection statements and less consideration statements than did normal controls; finally, they were ignored more often by peers and teachers.

Reciprocal Interactions

Historically, investigators of social interactions have assumed a monadic perspective, that is, they have focused on observation of discrete responses of individuals without reference to the impact of these acts on the recipient peer's behavior (Strain & Shores, 1977a). The widespread acceptance of the monadic perspective especially in the fields of psychology and special education is evidenced in the typical approach to intervention whereby an individual's behavior was observed, evaluated, and treated without evaluation of the behaviors of significant others.

However, the effectiveness of this approach is questionable since social interactions are not monadic but reciprocal, that is, effecting all parties in a social interaction. The lack of attention to this fundamental characteristic of human interactions requires that time and energy be devoted to the mutual interchange of social behavior. As Strain and Shore (1977a) pointed out:

> Only by employing observational techniques based upon a reciprocal conceptualization of social behavior can the effects of one child's behavior on his peers be studied systematically (p. 528).

To date, a limited number of studies (Johnson et al., 1973; Wahl et al., 1974) have obtained data on the reciprocal nature of social interactions.

In a study on the positive social reinforcement of peers, (Charlesworth & Hartup, 1967), 70 nonhandicapped preschool children were observed on four target behaviors (i.e., giving positive attention and approval, giving affection and acceptance, submission, and token giving). The results clearly demonstrated the reciprocal nature of interactions. A significant correlation was found between number of reinforcers given and number of reinforcers received, with those children giving the most reinforcement also receiving the most. Similar reciprocal interactions involving negative behaviors have also been reported by Patterson and Cobb (1971) in their study of aggressive children. Aggressive behaviors such as hitting were found to be facilitated by a number of negative behaviors (e.g., hitting, ignoring, yelling, teasing, and disapproval). In comparison, some positive behavior, such as approval and touching, were found to inhibit hitting.

A laboratory study by Pruitt (1968) also investigated the reciprocal nature of interactions. The procedures of the experiment required that 77 college undergraduates participate in a game designed to measure how much money the subjects kept and gave away under various conditions. A confederate manipulated the variables in the study. The important result for our purposes was that the subjects gave money to the confederate in accordance with how much money they had received from the confederate in the past. The more money the subject received, the more he/she gave away, thus clearly demonstrating reciprocity.

An investigation of the reciprocal interactions of exceptional children, suggested that the principle of reciprocity also holds true for handicapped individuals. In this study (Kopstein, 1972), 18 target behaviors were observed in the free-play interactions of 14 TMR subjects. It was predicted that negative responses followed by positive consequences would be repeated, and that negative responses followed by negative consequences would be changed. However, results did not support this hypothesis. Instead, aversive consequences tended to facilitate aggression. Aggressive behavior was more likely to be repeated when followed by a negative consequence, and was more likely to change when followed by a positive consequence. This study supported the contention of Strain and Shores (1977b) that "with respect to both the quality and quantity of interaction, the child creates his own social environment" (p. 493).

In summary, the reciprocal nature of social interactions, especially among exceptional children suffers from a scarcity of data-based research even though the limited research available suggests that such interactions are interrelated and reciprocal. Instead, a monadic prespective has traditionally been employed although its effectiveness is questionable since such an approach ignores one of the basic elements of interaction.

A review of the research indicated that both family interactions and peer interactions are reciprocal for a variety of populations (e.g., TMR, undergraduates, preschoolers) in that positive and negative behaviors have been found to elicit like positive and negative responses from both peers and adults. However, noticeably absent from the literature are investigations of the reciprocal nature of teacher-pupil interactions. Since many interactions have been found to be reciprocal, teacher-pupil interactions can also be expected to be reciprocal, and consequently, worthy of further investigation.

Summary

Systematic observation of social behavior is widespread, probably as a result of the impact of applied behavior analysis. Over the years, elaborate and scientific ways of observing behavior have been devised. One area in which systematic observation has played a major role is the family interactions. Numerous studies have focused on the family interactions of exceptional children but, as yet, no clear patterns of family interaction have been isolated. Studies on the teacher-pupil and peer interactions of exceptional students are also common in the literature. Most of the studies on teacher-pupil interaction have been concerned with direct versus indirect teaching behaviors, while studies on peer interactions have (a) evaluated the interactions of handicapped and nonhandicapped students, and (b) have compared the interactions of handicapped and nonhandicapped children. The results of these studies have suggested that nonhandicapped children are less likely to interact with handicapped children, and handicapped students are less adept at interacting than are nonhandicapped students. Finally, a few studies have investigated the reciprocal nature of interactions. The limited research available suggests that both family interactions and peer interactions are reciprocal in nature.

The review of the available literature points out a number of areas in need of thorough investigation. First, studies comparing verbal interactions of handicapped and nonhandicapped are limited and have not yielded consistent results. Even more scarce are studies comparing the verbal interactions of students with different handicapping conditions (e.g., BD and LD). Second, studies analyzing teacher-pupil social interactions are scarce. While some studies have investigated peer social interactions and teacher-pupil academic interactions, few studies have focused on teacher-pupil social interactions, while still fewer have compared teacher-pupil social interactions for handicapped and nonhandicapped pupils and regular and special education teachers. Finally, although the reciprocal nature of interactions is beginning to receive some professional attention, the reciprocal nature of teacher-pupil social interactions has been neglected. To date research has not examined the corresponding and complementary qualities of teacher-pupil social interactions.

CHAPTER III

METHODS AND PROCEDURES

Subjects and Setting

Subjects in this study were randomly selected fourth, fifth, and sixth grade students from a large urban school district in the midwest. A total of 45 regular and special class students participated in the study, including 15 subjects selected from each of three types of classrooms: (1) regular classrooms; (2) self-contained learning disabilities (LD) classrooms; and (3) self-contained behavior disordered (BD) classrooms.

[illegible] addition to the 45 target subjects, the classroom peers, aides, and teachers of each subject also participated. A total of 14 teachers participated in the study of which six were in regular education, five were in LD, and three were in BD classes. Since only three BD classes were in operation in the district, all available BD teachers, and almost all available BD students were included in the study.

The study focused on the interaction characteristics of children diagnosed and placed in specific regular and special education programs. Since the study was concerned with differences between children receiving certain types of services, only limited attempts were made to validate the appropriateness of placement. Accordingly, students in regular education were considered "normal", and students in self-contained LD and BD programs were considered LD and BD, respectively. All subjects had an IQ above 88 and exhibited no major physical, speech, visual, or hearing handicaps. Regular education students were not receiving special services and were functioning not more than two years below grade level in reading, writing, or arithmetic according to achievement test scores. This criteria was used so that students receiving Title I services would not be included in the sample of regular education students. It was assumed that by excluding remedial students, the sample of regular education students would more closely approximate a normal distribution with the majority of the students functioning at or close to grade level.

Behavior disordered students had been placed in self-contained programs as a result of evaluations by school district personnel. The records of each BD student were reviewed to insure that BD participants met the criteria for BD as specified by the local school district definition. The local definition, which was consistent with PL 94-142 (U.S.O.E., 1976) and the State of Kansas Special Education Plan, was as follows:

> Children and youth with personal and social adjustment problems demonstrate one or more marked behavioral excesses and/or defects which are chronic in nature, occur in several environments, which interfere with learning and/or social interactions in the educational setting and have not responded to remediation available in the regular educational setting. Behavior excesses and deficiencies may include the following:
>
> 1. Aggressive and/or anti-social behavior
> 2. Uncontrolled and/or bizarre behavior

3. Persistant moods of depression or unhappiness
4. Withdrawal from interpersonal contacts and/or flattened affect
5. Disregard for the consequence of own behavior
6. Unreasonable fears associated with personal or school experiences
7. Development of physical symptoms without a physical cause
8. Compulsive behavior
9. Loss of contact with reality

In addition to meeting the criteria included in the definition, BD subjects also met three additional criteria:

1. Documented evidence that efforts to remediate the problem have been attempted in a less restrictive environment.
2. A medical examination by a licensed physician with documented results indicating that physiological problems are not the cause of the behavior.
3. Evaluation by an outside licensed clinical professional that documents a generalized personal and social disturbance.

Because severely emotionally disturbed children (e.g., autistic, autistic-like, etc.) display unique characteristics which distinguish them from mildly and moderately BD pupils, these students were not included in this study.

Learning disabled students in the study had been placed in a self-contained program as a result of an evaluation by school district personnel. Each student was more than two years below grade level in reading, writing, or arithmetic according to individual achievement test results. The records of each child were reviewed to insure that each participant met the local definition of LD. The local definition, which was consistent with definition specified in PL 94-142 (U.S.O.E., 1976), was as follows:

> Those children who have a disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Such disorders include such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such terms does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, or mental retardation or emotional disturbance, or environmental, cultural, or economic disadvantage (p. 52404).

Students placed in an LD class also met four criteria for placement as specified by the local school district:

1. Classroom observation indicating that the student exhibited several traits common to learning disabled students, and that these deficiencies were negatively affecting academic progress.
2. There was evidence that cultural, economic or past school history had not been responsible for the lack of academic progress.
3. There was evidence that appropriate academic remediation was not possible without special education.
4. There was evidence of a severe discrepancy between intelligence and achievement.

Parents of target students were fully informed of the intent of the study, and written consent to participate was obtained (see Appendix A). Consent for participation was also obtained from teachers (Appendix A), although the full intent of the study was not disclosed because knowledge of the intent of the study might have biased the results.

The setting for the study varied according to the target subjects' educational placement. Regular education students were observed in the regular classroom, while LD and BD students were respectively observed in their self-contained classrooms.

Instrumentation

Behavior Observation System

A direct behavior observation procedure was designed to monitor interactions. The procedure used a 15-second partial-interval observation technique in which interactions were recorded on a data sheet divided into 28 intervals of 15-second duration (see Appendix B). Fourteen target behaviors were monitored: neutral, praise, assist, instruct, answer, question, sympathy, disapprove, disrupt, command, complain, defensive, refuse, threaten, and no response. Target behavior definitions are listed in Appendix C.

During each 15-second interval a number of types of data were recorded. These data included (1) the status of the individual emitting the behavior (i.e., subject, teacher, teachers' aide, peer); (2) the specific target behavior; and (3) the sequence of the interaction. The status of the individual was indicated by an initial (i.e., student-S, teacher-T, aide-A, peer-P), and the target behaviors were denoted by an assigned numeral. All interactions were recorded sequentially so as to allow for a determination of whether the behavior was an initial verbalization or a response to another person. For example, one typical interaction might have been recorded as follows:

S5 ----- T4

In this interaction, the target subject asked the teacher a question and the teacher, in response, answered the question.

Observer reliability was determined by percent agreement

(Sulzer-Azaroff & Mayer, 1977). The formula for percent agreement was as follows:

$$\frac{\text{number of agreements}}{\text{number of agreements + disagreements}} \quad \text{X} \quad 100$$

Agreements and disagreements were scored for each component of the interaction. For example, if one observer recorded an interaction as S5 --- T4 while the other observer recorded the interaction as S5 --- T2, then there would be three agreements and one disagreement. In this case, the disagreement was the type of teacher response. Throughout the study, observers had to maintain a minimal interobserver reliability criteria of 80% agreement.

Procedure

Two trained observers observed and recorded data. Training consisted of one session of general instructions on the objective definitions of behavior and behavior observation procedures, and numerous supervised practice sessions in using the behavioral observation system. Training was completed when observers obtained 80% interobserver agreement in five consecutive practice sessions of independent observation.

Each target child was observed for six 7-minute periods. Observers used stopwatches to monitor recording intervals. Observational procedures were the same for all subjects. All observations were done between 8:30 and 3:30 P.M. on Monday thru Friday. Observations occurred during structured time periods while students were engaged in either individual or group academic activities and in situations when there were equitable opportunities for interaction. Target students were not observed during free discussion, free time, play periods, or periods when pupils were not allowed to interact with others. All observations occurred in the classroom. Behavior was not monitored in hallways, gymnasiums, cafeterias, or on playgrounds.

Special education students were observed in their self-contained classrooms, while regular education students were observed in their regular classrooms. Special education students were not observed in mainstream classrooms.

In many respects the environments of the classrooms were similar for the three groups. However, because the maximum number of students allowed in special classes is mandated by law, the number of students per class varied for special and regular classes.

Hypotheses

Data were collected to enable statistical analysis of 10 hypotheses:

Hypothesis 1: There will be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of positive statements directed toward peers, teachers, and aides (i.e., source).

Hypothesis 2: There will be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of neutral statements directed toward peers, teachers, and aides (i.e., source).

Hypothesis 3: There will be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of negative interactions directed toward peers, teachers, and aides (i.e., source).

Hypothesis 4: There will be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of positive statements received from peers, teachers and aides (i.e., source).

Hypothesis 5: There will be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of neutral statements received from peers, teachers, and aides (i.e., source).

Hypothesis 6: There will be no significant differences between BD, LD and regular students (i.e., placement) in the frequency of negative statements received from peers, teachers, and aides (i.e., source).

Hypothesis 7: Positive statements given by BD, LD and regular students to peers will not correlate with positive statements given by peers to students.

Hypothesis 8: Positive statements given by BD, LD, and regular students to teachers will not correlate with positive statements given by teachers to students.

Hypothesis 9: Negative statements given by BD, LD, and regular students to peers will not correlate with negative statements given by peers to students.

Hypothesis 10: Negative statements given by BD, LD, and regular students to teachers will not correlate with negative statements given by teachers to students.

Data Analysis

For purposes of data analysis, 14 target behaviors were combined into four general classes of behavior: (1) positive, (2) negative, (3) neutral, and (4) no response. The general class of positive behavior consisted of the specific target behaviors praise, assist, and sympathy; negative behaviors of disapproval, disruption, commanding, complaining, defensiveness, refusal, and threatening; and neutral behaviors of answering, questioning, and neutral (i.e., statements which provided information but were not answers to questions, such as, "I'm finished", "Good morning", "I thought spiders were insects").

Hypotheses 1 through 6 were assessed by means of analyses of variance. Classical 3 X 3 analyses of variance (ANOVA) with a missing cell were used to analyze the frequency of positive, negative, and neutral statements (Barr, Goodnight, & Sall, 1979). The ANOVA was an incomplete 3 X 3 because the regular classes did not have aides so comparisons of aides could be done on only two levels (i.e., LD and BD aides). The two factors were placement of the student (i.e., BD, LD, and regular class), and source of interaction (i.e., peer, teacher, aide). The analysis examined the frequency of statements from BD, LD, and regular education students to their teachers, aides, and peers; and statements from teachers, aides, and peers to the students.

Five separate analyses of variance were performed, all at the .05 level of significance. Separate ANOVA were done for positive statements to students; negative statements to and from students; neutral statements to and from students. A formal ANOVA on positive statements from students to others was not performed because of the very low frequency of this behavior. For example, only one of 15 regular education students emitted any positive statements, and for all students, the total number of positive statements to others was less than 1% of all statements directed at others. Post-hoc analyses of significant effects were done using Duncan's Multiple Range Test (Barr, et al., 1979).

Hypotheses 7 to 10 were tested with a Pearson Product Moment Correlation at the .05 level of significance (Ferguson, 1976). Data were summed across groups (BD, LD, and regular) resulting in a total of 45 pairs of observations. Correlations were performed on four sets of data: (1) positive verbalizations to and from teachers; (2) positive verbalizations to and from peers; (3) negative verbalizations to and from teachers; and (4) negative verbalizations to and from peers. A high correlation between statements given and received would suggest that interactions were reciprocal.

The reciprocal nature of interactions was also examined by computing first-order conditional probabilities. Conditional probability indicates the probability of a behavior given the previous occurrence of some behavior. The formula used for determining conditional probability was as follows:

$$\frac{\text{no. "X" response}}{\text{no. "X" initiations}}$$

Only first-order conditional probabilities were computed because the nature of the data did not allow for computing second- and third-order probabilities. Most of the verbal interactions were very brief and took the form of a comment followed by no response, or a comment followed by a single response. Chains of three and four verbalizations were relatively rare. In addition, some literature suggests that the need for higher order probabilities may be limited as the antecedent stimulus closest to the response exerts the most influence (Karpowitz, 1972; Patterson, 1974). Patterson (1974) and Karpowitz (1972) investigated the amount of information conveyed about significant determinants of behavior in preceding intervals of 6-seconds as compared to 18-seconds. A substantial amount of information about antecedent events which were significant determinants of a behavior was found in the 6-second interval immediately preceding the behavior. Little information regarding significant determinants was added by analyzing antecedent events occurring in an 18-second interval immediately preceding the behavior.

Conditional probabilities determined the probability of a selected response (i.e., positive, negative, neutral, or absence of a response) following an initial verbalization (i.e., positive, negative, and neutral). These probabilities were computed for six sets of data: (1) student verbalization -- teacher response; (2) teacher verbalization -- student response; (3) student verbalization -- peer response; (4) peer verbalization -- student response; (5) student verbalization -- aide response; and (6) aide verbalization -- student response.

Analysis of the frequency of the 14 specific target verbalizations was also performed. The analysis focused on the frequency and percentage of each target behavior for six possible interactions: (1) from student to peer; (2) from student to teacher; (3) from student to aide; (4) from teacher to student; (5) from aide to student; and (6) from peer to student.

CHAPTER IV

RESULTS

The present chapter will review the results of the various observational data analyses. Hypotheses 1 through 6 were assessed by means of a classical 3 x 3 analysis of of variance (ANOVA) with a missing cell (Barr, et.al., 1979). Hypotheses 7 to 10 were evaluated by means of a Pearson Product Moment Correlation procedure (Ferguson, 1976). The significance of both the F ratios and the correlation coefficients were tested at the .05 level. First-order conditional probabilities were computed to examine the reciprocal nature of interactions, and an analysis of the frequency and percentage of each of the 14 specific target verbalizations was also performed.

Reliability

Inter-observer reliability, as determined by percent effective agreement, was computed over a total of 24 seven-minute observation sessions. One reliability check, consisting of six seven-minute observation sessions, was done once a week for four weeks. Overall, reliability ranged from 85% to 100% with a mean percent effective agreement of 95.5%. The range and mean of the reliability for each of the classes of students was consistent across groups. Reliability for behavior disordered (BD) students ranged from 85% to 100% with a mean percent effective agreement of 94.8%. For learning disabled (LD) students, reliability ranged from 92% to 100% with a mean of 95.3%. Reliability for regular education students ranged from 90% to 100% with a mean of 97.2%.

Analysis of Variance

Hypothesis 1 stated that there would be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of positive statements directed toward peers, teachers, and aides (i.e., source). An ANOVA for positive statements from BD, LD, and regular students to others was not computed because of the low frequency of this behavior. As stated earlier, only one of 15 regular education students emitted any positive statements. Moreover, of the total number of statements to others, less than 1% were positive. The extremely infrequent nature of this behavior did not provide enough data to enable a statistical analysis.

Hypothesis 2 stated that there would be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of neutral statements directed toward peers, teachers, and aides (i.e., source). An ANOVA of neutral statements from students to others yielded a significant main effect for source (Table 1). Duncan's post-hoc analysis procedure revealed that neutral statements to teachers ($\bar{X} = 21.71$) were higher than to aides ($\bar{X} = 13.03$) which were, in turn, higher than to peers ($\bar{X} = 5.71$). Behavior disordered ($\bar{X} = 14.98$), learning disabled ($\bar{X} = 14.40$), and regular students ($\bar{X} = 10.10$) did not differ significantly.

Table 1

ANOVA of the Frequency of Neutral Statements From BD, LD, and Regular Students to Peers, Teachers, and Aides

Source	DF	Sum of Squares	F Value	PR>F
Placement (BD, LD, Regular)	2	637.22222222	2.38	0.0971
Source (Peer, Teacher, Aide)	2	5368.68888889	20.06	0.0001*
Placement X Source	3	1072.33888889	2.67	0.0501

*$p < .05$

Hypothesis 3 stated that there would be no significant differences between BD, LD and regular students (i.e., placement) in the frequency of negative interactions directed toward peers, teachers, and aides (i.e., source). An analysis of negative statements from students to others revealed significant effects for placement, source, and interaction (Table 2). A visual display of the interaction effect (Figure 1) reveals

Table 2

ANOVA of the Frequency of Negative Statements from BD, LD, and Regular Students to Peers, Teachers, and Aides

Source	DF	Sum of Squares	F Value	PR>F
Placement (BD, LD, Regular)	2	640.08888889	7.94	0.0006*
Source (Peer, Teacher, Aide)	2	1554.48888889	19.28	0.0001*
Placement X Source	3	410.06666667	3.39	0.0204*

*$p < .05$

that BD ($\bar{X}$ = 11.73) and LD ($\bar{X}$ = 11.87) teachers received a significantly higher number of negative statements than peers, aides, or regular education teachers. The mean frequency of negative comments directed to BD aides ($\bar{X}$ = 4.07), LD aides ($\bar{X}$ = 4.07), BD peers ($\bar{X}$ = 1.67), LD peers ($\bar{X}$ = 2.73), regular peers ($\bar{X}$ = 1.07), and regular teachers ($\bar{X}$ = 1.67) did not differ significantly.

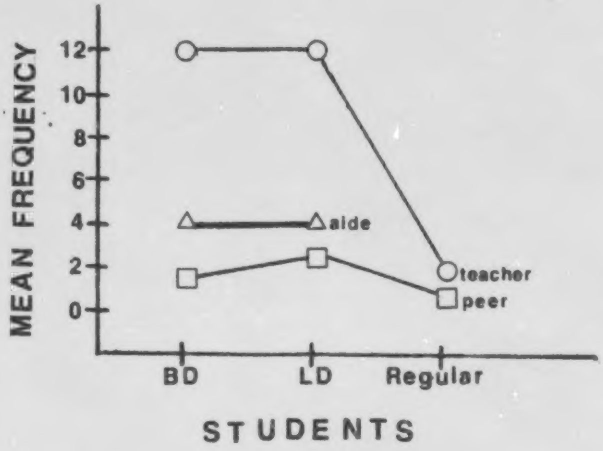

Figure 1. Mean frequency of negative statements by BD, LD and regular students directed toward peers, teachers and aides.

Hypothesis 4 stated that there would be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of positive statements received from peers, teachers, and aides (i.e., source). As Table 3 indicates, an ANOVA on the frequency of positive statements from peers, teachers, and aides (i.e., source) to students reveals a significant main effect for source. Duncan's test indicated that BD teachers ($\bar{X} = 4.27$), LD teachers ($\bar{X} = 4.93$), regular teachers ($\bar{X} = 4.20$), and LD aides ($\bar{X} = 4.47$) emitted significantly more positive statements to students than did BD aides ($\bar{X} = 1.53$) and peers. The three groups of teachers did not differ significantly, nor did BD peers ($\bar{X} = 0.00$), LD peers ($\bar{X} = 0.00$), and regular peers ($\bar{X} = 0.133$).

Table 3

ANOVA of the Frequency of Positive Statements to BD, LD, and Regular Students from Peers, Teachers, and Aides

Source	DF	Sum of Squares	F Value	PR>F
Placement (BD, LD, Regular)	2	3.48888889	0.13	0.8761
Source (Peer, Teacher, Aide)	2	317.15555556	12.04	0.0001*
Placement X Source	3	33.71111111	0.85	0.472

$*p<.05$

Hypothesis 5 stated that there would be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of neutral statements received from peers, teachers, and aides (i.e., source). Analysis of neutral statements from peers, teachers, and aides to students indicated significant effects for placement, source, and interaction (Table 4). A graphic display of the mean frequency of neutral statements from others is displayed in Figure 2. The mean frequency of neutral statements emitted by BD teachers ($\bar{X} = 42.53$) was significantly higher than for all others. The mean frequency of neutral statements emitted by LD teachers

Table 4

ANOVA of the Frequency of Neutral Statements to BD, LD, and Regular Students From Peers, Teachers, and Aides

Source	DF	Sum of Squares	F Value	PR>F
Placement (BD, LD, Regular)	2	2054.86666667	4.91	0.0090*
Source (Peer, Teacher, Aide)	2	11851.02222222	28.32	0.0001*
Placement X Source	3	3184.28888889	5.07	0.0026*

* p<.05

($\bar{X}$ = 24.67) was significantly higher than for peers. The mean for BD aides ($\bar{X}$ = 18.47), regular teachers ($\bar{X}$ = 17.40), and LD aides ($\bar{X}$ = 16.47) was significantly different than the mean for regular peers ($\bar{X}$ = 6.00) and BD peers ($\bar{X}$ = 4.00) but not for LD peers ($\bar{X}$ = 7.20).

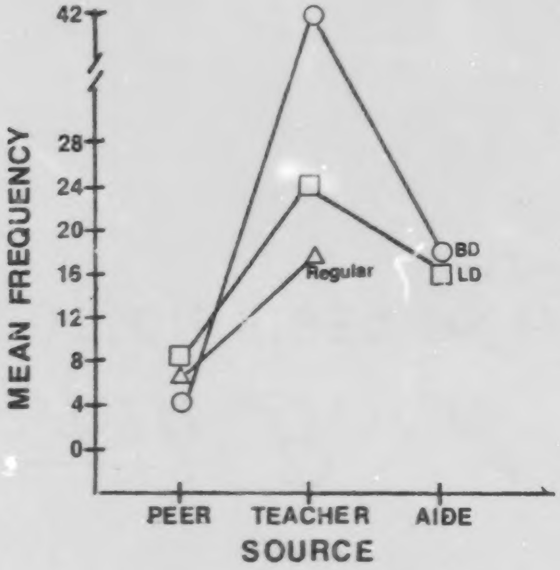

Figure 2. Mean frequency of neutral statements to BD, LD, and regular students from peers, teachers, and aides.

Hypothesis 6 stated that there would be no significant differences between BD, LD, and regular students (i.e., placement) in the frequency of negative statements received from peers, teachers, and aides (i.e., source). The ANOVA on negative statements from peers, teachers, and aides to students yielded a significant interaction effect (Table 5).

Table 5

ANOVA on the Frequency of Negative Statements to BD, LD and Regular Students from Peers, Teachers, and Aides

Source	DF	Sum of Squares	F Value	PR>F
Placement (BD, LD, Regular)	2	0.06666667	0.02	0.9847
Source (Peer, Teacher, Aide)	2	11.06666667	2.66	0.0743
Placement X Source	3	20.17777778	3.12	0.0285*

*$p < .05$

However, post-hoc analysis did not reveal significant individual differences. A graph of the mean frequency of comparison statements received from peers, teachers, and aides is displayed in Figure 3. Although the graph suggests a tendency for BD teachers ($\bar{X} = 1.2$), LD teachers ($\bar{X} = 1.2$), BD aides ($\bar{X} = 1.2$), and regular peers ($\bar{X} = 1.2$) to respond at a higher rate than others, this difference was not significant.

Pearson Product Moment Correlation

Hypothesis 7 stated that the frequency of statements given by BD, LD, and regular students to peers would not correlate with the frequency of positive statements given by peers to

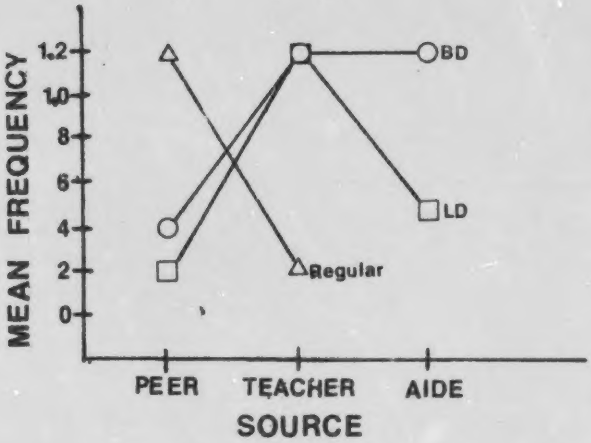

Figure 3. Mean frequency of negative statements to BD, LD and regular students from peers, teachers, and aides.

students. The correlation between positive verbalizations from students to peers and from peers to students was not significant ($r = .057$). The frequency of this behavior was very low ($\bar{X}$ student = .17778, SD = .67623; $\bar{X}$ peer = .08889, SD = .41216).

Hypothesis 8 stated that positive statements given by BD, LD and regular students to teachers would correlate with positive statements given by teachers to students. Positive verbalizations from students to teachers and from teachers to students were not significantly correlated ($r = .241$). The rate of this behavior was much lower for students than teachers ($\bar{X}$ students = .1333, SD = .4; $\bar{X}$ teacher = 4.7333, SD = 3.8203).

Hypothesis 9 stated that negative statements given by BD LD, and regular students to peers would correlate with negative statements given by peers to students. Comparisons of negative statements from students to peers and from peers to students resulted in a moderate and significant positive correlation ($r = .398$, $p < .05$). The frequency of this behavior was low for both groups, but slightly higher for students than peers ($\bar{X}$ student = 1.8222, SD = 2.7752; $\bar{X}$ peer = .7556, SD = 1.7532).

Hypothesis 10 stated that negative statements given by BD, LD, and regular students to teachers would not correlate with negative statements given by teachers to students. Negative statements from students to teachers and from teachers to students yielded a correlation coefficient of .022. The rate of this behavior was much higher for students than teachers ($\bar{X}$ student = 8.4222, SD = 10.0321; $\bar{X}$ teacher = .8889, SD = 1.3037).

Conditional Probabilities

The conditional probabilities of various teacher responses as a function of student verbalizations are displayed in Table 6. As indicated in this Table, negative verbalizations by students were most likely to be followed by no response from teachers for all three groups. The probability of negative student verbalizations being followed by negative teacher responses was very low, suggesting that teachers ignore negative student statements rather than respond reciprocally. Neutral student verbalizations were also followed most often by no response, but the probability of neutral response was also fairly high. Behavior disordered teachers differed somewhat from regular teachers in that BD teachers were most likely to respond to neutral verbalizations with neutrality

Table 6

First-Order Conditional Probabilities of Teacher Responses Given a Student Verbalization

	Teacher Response			
Group	Positive	Negative	Neutral	No Response
Positive Verbalization				
BD			.50	.50
LD				1.00
Regular				
Total			.40	.60
Negative Verbalization				
BD	.02	.01	.16	.81
LD	.01	.02	.06	.91
Regular			.08	.92
Total	.01	.01	.11	.87
Neutral Verbalization				
BD	.09	.01	.51	.39
LD	.21	.01	.39	.39
Regular	.15		.15	.70
Total	.15	.01	.38	.47

rather than no response. Regular teachers were much more likely to emit no response to neutral verbalizations. Positive verbalizations from students were so infrequent that this data did not allow statistical analysis.

The conditional probabilities for student responses following a teacher verbalization are listed in Table 7. These

Table 7

First-Order Conditional Probabilities of Student Responses Given a Teacher Verbalization

Group	Student Response			
	Positive	Negative	Neutral	No Response
Positive Verbalization				
BD			.08	.92
LD			.02	.98
Regular				1.00
Total			.03	.97
Negative Verbalization				
BD		.17	.22	.61
LD		.17	.17	.66
Regular			.25	.75
Total		.15	.20	.65
Neutral Verbalization				
BD	.01	.03	.41	.55
LD	.01	.01	.72	.26
Regular			.81	.19
Total	.01	.02	.58	.39

data suggest that positive teacher verbalizations were not responded to in a reciprocal manner as all three groups of students usually reacted to positive verbalizations with no response. Likewise, negative verbalizations were not responded to in a reciprocal manner by students as students were most likely to display no response to negative verbalizations. Neutral verbalizations by teachers were responded to differently for BD students as compared to LD and regular students. Behavior disorder students were more likely to emit no verbal response to neutral teacher verbalizations, while LD and regular students responded with neutral statements.

Table 8 displays the conditional probabilities for peer responses following student verbalizations. The most frequent peer response following student verbalizations was no response. This was true regardless of the type of student verbalization, although neutral verbalizations were more likely to be followed by a neutral response than were positive and negative verbalizations. The conditional probabilities were very similar for all three groups of peers in all instances.

Table 9 displays the conditional probabilities for student responses following peer verbalizations. Data in Table 9 are very similar to data in Table 8, as one would expect. The most likely response following a peer verbalization was no statement; however, neutral verbalizations were also likely to be followed by neutral responses. Behavior disordered, learning disabled, and regular students responded in a very similar manner with the exception that LD students tended to respond to negative verbalizations with more negative and neutral statements.

The conditional probabilities of BD and LD aides

Table 8

First-Order Conditional Probabilities of Peer Responses Given a Student Verbalization

Group	Peer Response Positive	Negative	Neutral	No Response
Positive Verbalization				
BD				1.00
LD				1.00
Regular				1.00
Total				1.00
Negative Verbalization				
BD		.04	.08	.88
LD		.02	.13	.85
Regular		.06	.13	.81
Total		.04	.11	.85
Neutral Verbalization				
BD		.01	.44	.52
LD			.35	.64
Regular		.05	.37	.58
Total		.02	.38	.59

responses to student verbalizations are listed in Table 10. As Table 10 indicates, BD and LD aides were very similar. Both were most likely to respond to negative verbalizations with no response, and were most likely to respond to neutral verbalizations with neutral responses. The only difference between

Table 9

First-Order Conditional Probabilities of Student Responses Given a Peer Verbalization

	Student Response			
Group	Positive	Negative	Neutral	No Response
Positive Verbalization				
BD				
LD				
Regular				
Total				
Negative Verbalization				
BD				1.00
LD		.17	.17	.66
Regular			.06	.94
Total		.03	.06	.91
Neutral Verbalization				
BD		.03	.41	.56
LD	.01	.03	.46	.50
Regular	.04	.04	.44	.48
Total	.01	.04	.44	.51

these groups was that LD aides were slightly more likely to respond positively to both negative and neutral verbalizations. Positive verbalizations were not included in the analysis because of the infrequent occurrence of this behavior.

Table 11 displays the conditional probabilities of student

Table 10

First-Order Conditional Probabilities of Aide Responses Given a Student Verbalization

	Aide Response			
Group	Positive	Negative	Neutral	No Response
Positive Verbalization				
BD				
LD				
Total				
Negative Verbalization				
BD	.02	.05	.24	.69
LD	.11	.03	.20	.66
Total	.06	.04	.22	.68
Neutral Verbalization				
BD	.09	.03	.56	.32
LD	.28		.41	.31
Total	.19	.02	.48	.31

responses to BD and LD aides verbalizations. Although BD and LD students were similar in their likelihood of emitting no response to positive and negative verbalizations, there were some noticeable differences between these two groups of students. Behavior disordered students were more likely than LD students to respond in a neutral manner to positive statements, and more likely to respond in a negative manner to negative statements. Learning disabled students, on the other hand, emitted more neutral responses to neutral verbalizations than did BD students.

Table 11

First-Order Conditional Probabilities of Student Responses Given an Aide Verbalization

	Student Response			
Group	Positive	Negative	Neutral	No Response
Positive Verbalization				
BD			.36	.64
LD		.02	.14	.84
Total		.01	.20	.79
Negative Verbalization				
BD		.40		.60
LD			.25	.75
Total		.29	.07	.64
Neutral Verbalization				
BD		.06	.42	.52
LD	.01	.03	.65	.31
Total		.05	.53	.42

Frequency and Percentage of Specific Target Behaviors

Table 12 displays the frequency and percentage of the target behaviors summed across placement groups (i.e., BD, LD, and regular). The data indicates that "no response" was a high frequency behavior regardless of the source of the interaction (i.e., students, teachers, aides, and peers). It

Table 12

Frequency and Proportion of Specific Target Behaviors Summed Across Groups

Behavior	To Peer		To Teacher		To Aide		From Teacher		From Aide		From Peer	
neutral	(70)	.14	(20)	.01	(13)	.01	(15)	*.01	(4)	*.01	(60)	.11
praise	(5)	*.01	(6)	*.01	(2)	*.01	(204)	.10	(71)	.09	(2)	*.01
assist	(7)	.01	(2)	*.01	(0)	.00	(4)	*.01	(19)	.02	(2)	*.01
instruct	(60)	.12	(21)	.01	(8)	.01	(695)	.33	(287)	.34	(55)	.10
answer	(54)	.11	(694)	.35	(258)	.31	(176)	.08	(53)	.06	(72)	.13
question	(70)	.14	(263)	.13	(119)	.14	(392)	.19	(159)	.19	(70)	.13
sympathy	(1)	.00	(0)	.00	(0)	.00	(1)	*.01	(0)	.00	(0)	.00
disapprove	(10)	.02	(3)	*.01	(5)	*.01	(13)	*.01	(16)	.02	(5)	*.01
disrupt	(63)	.12	(290)	.14	(84)	.10	(0)	.00	(0)	.00	(21)	.04
command	(5)	*.01	(3)	*.01	(1)	*.01	(21)	.01	(10)	.01	(1)	*.01
complain	(5)	.01	(38)	.02	(26)	.03	(5)	*.01	(0)	.00	(2)	*.01
defensive	(6)	.01	(37)	.02	(31)	.04	(0)	.00	(0)	.00	(5)	*.01
refuse	(0)	.00	(5)	*.01	(3)	*.01	(0)	.00	(1)	*.01	(0)	.00
threaten	(1)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00
no response	(155)	.30	(626)	.31	(294)	.35	(577)	.27	(212)	.25	(241)	.45
TOTAL	(507)		(2008)		(844)		(2103)		(832)		(536)	

*less than

should be noted, however, that no judgement should be placed on the appropriateness or inappropriateness of "no response". "No response" reflects only the end of the conversation and does not suggest that statements requiring a response were ignored. Excluding the "no response" category, the highest percentage of teacher and aide verbalizations were "instruct" followed by "question". The highest percentage of student verbalizations were "answer" and "question", although a high percentage of "neutral" statements were directed to peers. The highest percentage of negative behaviors emitted by students was "disrupt". Positive verbalizations and most negative verbalizations, other than "disrupt", were relatively infrequent.

Tables 13, 14, and 15 indicate the frequency and percentage of specific target behaviors according to student placement. Generally, all three groups of students were comparable in having a low frequency of specific positive behaviors and of specific negative behaviors, with the exception of "disrupt".

Regular students were relatively low in "question" and relatively high in "instruct" in comparison to BD and LD students in statements directed to peers. They were also relatively low on "disrupt" types of statements directed to peers and teachers, especially in considering the frequency of this behavior. Behavior disordered students, in interactions with teachers, were relatively low in "answer" and high in "no response". Behavior disordered students asked considerably more "questions" from teachers than LD and

Table 13

Frequency and Proportion of Specific Target Behaviors for BD Students

Behavior	To Peer	To Teacher	To Aide	From Teacher	From Aide	From Peer
neutral	(5) .04	(14) .01	(6) .01	(7) *.01	(3) .01	(11) .09
praise	(2) .01	(2) *.01	(0) .00	(64) .07	(16) .04	(2) .02
assist	(0) .00	(2) *.01	(0) .00	(4) *.01	(8) .02	(0) .00
instruct	(13) .10	(13) .01	(7) .02	(229) .27	(142) .35	(7) .05
answer	(14) .11	(218) .22	(101) .25	(128) .15	(29) .07	(21) .17
question	(24) .18	(194) .19	(74) .18	(169) .20	(83) .20	(21) .17
sympathy	(0) .00	(0) .00	(0) .00	(1) *.01	(0) .00	(0) .00
disapprove	(6) .05	(3) *.01	(4) .01	(6) .01	(14) .03	(1) *.01
disrupt	(15) .11	(127) .13	(16) .04	(0) *.00	(0) .00	(4) .03
command	(0) .00	(3) *.01	(1) *.01	(8) .01	(4) .01	(1) *.01
complain	(3) .02	(30) .03	(21) .05	(3) *.01	(0) .00	(2) .02
defensive	(1) *.01	(23) .02	(13) .03	(0) .00	(0) .00	(1) *.01
refuse	(0) .00	(5) *.01	(3) *.01	(0) .00	(1) *.01	(0) .00
threaten	(0) .00	(0) .00	(0) .00	(0) .00	(0) .00	(0) .00
no response	(48) .37	(369) .37	(163) .40	(241) .28	(105) .26	(56) .44
TOTAL	(131)	(1003)	(409)	(860)	(405)	(127)

*less than

Table 14

Frequency and Proportion of Specific Target Behaviors for LD Students

Behavior	To Peer		To Teacher		To Aide		From Teacher		From Aide		From Peer	
neutral	(39)	.16	(4)	*.01	(7)	.02	(6)	.01	(1)	.00	(24)	.10
praise	(1)	*.01	(2)	*.01	(2)	*.01	(72)	.11	(55)	.13	(0)	.00
assist	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(11)	.03	(2)	*.01
instruct	(18)	.08	(4)	*.01	(1)	*.01	(252)	.39	(145)	.34	(29)	.12
answer	(35)	.15	(278)	.43	(155)	.38	(25)	.04	(24)	.06	(35)	.15
question	(39)	.16	(31)	.05	(47)	.12	(102)	.16	(76)	.18	(19)	.08
sympathy	(1)	*.01	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00
disapprove	(2)	.01	(0)	.00	(1)	*.01	(6)	.01	(2)	*.01	(2)	*.01
disrupt	(41)	.17	(141)	.22	(38)	.09	(0)	.00	(0)	.00	(4)	.02
command	(0)	.00	(0)	.00	(0)	.00	(10)	.02	(6)	.01	(0)	.00
complain	(2)	.01	(7)	.01	(5)	.01	(2)	*.01	(0)	.00	(0)	.00
defensive	(4)	.02	(12)	.02	(18)	.04	(0)	.00	(0)	.00	(0)	.00
refuse	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00
threaten	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00	(0)	.00
no response	(55)	.23	(160)	.25	(131)	.32	(169)	.26	(107)	.25	(123)	.52
TOTAL	(237)		(639)		(405)		(644)		(427)		(238)	

*less than

Table 15

Frequency and Proportion of Specific Target Behaviors for Regular Students

Behavior	To Peer	To Teacher	To Aide	From Teacher	From Aide	From Peer
neutral	(26) .18	(10) .03		(2) *.01		(25) .15
praise	(2) .01	(2) *.01		(68) .14		(0) .00
assist	(7) .05	(0) .00		(0) .00		(0) .00
instruct	(29) .20	(4) .01		(114) .23		(19) .11
answer	(5) .03	(198) .53		(24) .05		(16) .09
question	(7) .05	(38) .10		(121) .24		(30) .18
sympathy	(0) .00	(0) .00		(0) .00		(0) .00
disapprove	(2) .01	(0) .00		(1) .00		(2) .01
disrupt	(7) .05	(23) .06		(0) .00		(13) .08
commmand	(5) .03	(0) .00		(3) *.01		(0) .00
complain	(0) .00	(1) *.01		(0) .00		(0) .00
defensive	(2) .01	(2) *.01		(0) .00		(4) .02
refuse	(0) .00	(0) .00		(0) .00		(0) .00
threaten	(1) *.01	(0) .00		(0) .00		(0) .00
no response	(52) .36	(97) .26		(167) .33		(62) .36
TOTAL	(145)	(375)		(500)		(171)

*less than

regular students. In other behavior categories LD, BD, and regular students were very similar.

In comparing teacher verbalizations, LD teachers tended to emit relatively more "instruct" statements, while BD teachers gave a higher percentage of "answers". Regular teachers were not especially high or low in any category in comparison to BD and LD teachers. In the area of peer verbalizations, LD peers had a higher percentage of "no response" to students than did regular peers, and they had a low percentage of "questions" to students in comparison to BD and regular peers. Finally, in statements from students to aides and from aides to students, BD and LD groups were very similar.

Summary

Although there were no significant differences between BD, LD, and regular students in positive statements directed toward others, BD and LD students did emit significantly more negative statements to teachers than did regular students. Behavior disordered and LD students also emitted significantly more negative statements to teachers than to aides or peers, while regular students responded equally to teachers and peers. In terms of neutral statements, the three groups responded equally as all three groups tended to emit more neutral statements to teachers than to aides and more to aides than to peers.

The three groups of students did not differ in terms of positive or negative statements received from others with the exception that LD students received more positive statements from aides than did BD students. The three groups of students did differ, however, in terms of neutral comments. Behavior disordered students received significantly more neutral comments from their teachers than did LD and regular students.

Positive statements between students and teachers and between students and peers did not correlate significantly, nor did negative statements between students and teachers. However, negative statements between students and peers did significantly correlate, suggesting the reciprocal nature of negative interactions between students and peers.

Data on the conditional probability of one statement given a previous statement indicated that student responses were similar for BD, LD, and regular students. Also, student responses did not vary greatly across the source of the interaction (i.e., teachers, aides, and peers).

Student "no response" was a high probability response for all three groups regardless of type (i.e., positive, negative, or neutral) or source of interactions. These results suggest a very short or brief pattern of interactions in the classroom. Chains of three or more verbalizations were very rare.

Neutral responses by students were also highly probable especially in response to neutral verbalizations. On the other hand, the conditional probability of negative responses by students to others was relatively rare, however, the conditional probability of a negative student response was highest following a negative verbalization from others. For example, BD students were especially likely to emit a negative verbalization in response to a negative statement from an aide.

Teacher, aide, and peer responses to student verbalizations were very similar to each other and were similar to student responses to others. Teachers, aides, and peers were most likely to emit no response to student verbalizations, while the conditional probabilities of positive and negative responses were very low.

The frequency and percentage of specific target verbalizations indicated that the highest percentage of teacher and aide verbalizations were "instruct" and "question". Specific positive and negative verbalizations were infrequent. Of the student target verbalizations, "answer" and "question" had a high percentage of occurrence as did "instruct" and "neutral" statements to peers. Also, "disrupt" statements had a high percentage of occurrence although the percentage was lower for regular students than for BD and LD students. Specific positive and negative statements other that "disrupt" were infrequent.

CHAPTER V

SUMMARY & CONCLUSIONS

Summary

The purpose of this study was to compare the peer and teacher verbal interactions of behavior disordered (BD), learning disabled (LD), and regular education students. The study was most concerned with how the three types of students differed in their interactions, and how their verbalizations influenced the verbalizations of their peers, teachers, and teacher's aides (i.e., the reciprocal nature of interactions). A total of 45 students, 15 from each of three diagnostic groups (LD, BD, regular education) and their peers, teachers, and teacher's aides were observed to assess their verbal interactions. A behavior observation instrument was designed to monitor (1) the frequency of 14 target behaviors, (b) the direction of the interaction (i.e., given to or received from), and (c) the status of the party involved in the interaction (i.e., peer, teacher, aide). The results indicated that BD and LD students emitted significantly more negative statements to teachers than did regular education students. The three groups of students did not differ in terms of positive and neutral statements towards others or in terms of negative statements to peers and aides. Teachers of BD students emitted significantly more neutral statements to their students than did LD and regular teachers but the three groups of teachers did not differ in positive and negative statements directed to students. The three groups of peers and BD and LD aides did not differ in positive, negative, and neutral statements emitted with the exception that LD aides emitted more positive statements to their students than BD aides. A correlational analysis indicated that peers responded in a reciprocal manner to student negative verbalizations. Teachers did not respond in a reciprocal manner to either positive or negative student verbalizations, nor did peers respond to positive student verbalizations in a reciprocal manner. First-order conditional probabilities (i.e., the probability of a statement being followed by a selected response) indicated that BD, LD, and regular students responded to others in a similar manner. Likewise, the three groups of teachers were similar in their responses to students. In all groups, positive, negative, and neutral statements were most likely to be followed by the absence of a response or a neutral response. In terms of specific target verbalizations, the highest percentage of teacher and aide verbalizations were "instruct" and "question". Positive and negative teacher verbalizations were infrequent. Of the student target verbalizations, "answer" and "question" had a high percentage of occurrence as did "instruct" and "neutral" statements to peers. Also, "disrupt" statements had a high percentage of occurrence, although the percentage was lower for regular than for BD and LD students. Specific positive and negative student statements other than "disrupt" were infrequent.

Discussion

In terms of general classes of behavior, BD and LD students were very similar. They did not differ significantly in terms of positive, negative, or neutral statements emitted. However, BD and LD students did display some differences in comparison to regular students. The present study revealed results consistent with previous literature (Bryan, Wheeler, & Felcan, 1976; Bryan & Bryan, 1978; Raush et al., 1960) suggesting that BD and LD students engage in more verbalizations of a negative nature in comparison to regular students. It appears as though the rate of negative verbalizations distinguishes special from nonhandicapped students, but it does not distinguish between BD and LD students. For both BD and LD students, the rate of negative verbalizations was low for specific negative statements except "disrupt". Specific negative statements such as "commanding", "complaining", "threatening", disapproving", "refusing", and "defensive" were very infrequent for both groups of special students. "Disrupting", on the other hand, was a fairly frequent verbalization for both groups. Moreover, for both groups, teachers were the most frequent recipients of "disrupting" verbalizations. Regular students displayed a similar pattern of responding in that "disrupting" verbalizations were the most frequently emitted negative verbalization; however, what distinguished special and regular students was the low frequency of "disrupting" statements emitted by regular students in comparison to special students.

There were also similarities between special and regular students in terms of general behavior as the three groups did not differ in terms of positive or neutral statements emitted. Interpretation of the results regarding positive statements is difficult because of the infrequent nature of this behavior. However, if the results on positive verbalizations are valid, these findings would suggest that this is not a factor which distinguishes special and nonhandicapped students. Although special students are more negative in their interactions with teachers, they are not less positive.

Previous research on positive interactions is not readily available, although limited research has compared handicapped and nonhandicapped students positive peer interactions. The majority of this research has failed to find significant differences between special and regular students in their positive interactions with peers (Bryan & Bryan, 1978; Bryan, Donahue, & Pearl, 1981; Bryan & Pflaum, 1978; Bryan, Wheeler, Felcan, & Tomacene, 1976). However, the results are not entirely conclusive as two studies (Raush et al., 1960; Raush, 1965) found hyperaggressive boys to be significantly less friendly than nonaggressive controls.

Statements from teachers were similar for BD, LD, and regular teachers. The three groups of teachers did not differ in positive or negative statements to students. In neutral statements to students there were some differences. Behavior disordered teachers were more likely than LD and regular teachers to emit neutral verbalizations. The findings of no significant differences between special and regular education teachers in terms of positive verbalizations is somewhat surprising. One might expect that as a result of training in behavior management, BD and LD teachers would engage in more positive verbalizations as a means of social reinforcement. Also, the smaller class size might enable special education teachers to use more positive verbal reinforcement. However, this was not the case. Positive verbalizations were infrequent for all three groups of teachers, and these results are consistent with data from Lambie (1978) and Fink (1972) which revealed a low frequency of positive teacher verbalizations for BD and regular teachers. One possible explanation for the low rate of positive verbalizations, especially among special education teachers may be that special education teachers rely heavily on formally designed reinforcement programs and tangible reinforcers. A common practice may be to use stickers, points, and free time as reinforcers in daily reinforcement programs, while neglecting to informally use social praise.

Interactions from peers were very similar to the patterns of interactions from teachers. Behavior disordered, LD, and regular peers did not differ in positive, negative, or neutral statements. Moreover, these results are similar to the patterns of interactions of target students toward peers in that target students did not differ in positive, negative, or neutral statements directed toward peers. These results are inconsistent with previous literature on peer interactions (Bryan et al., 1976; Bryan & Bryan, 1978; Raush et al., 1960) which suggests that peer interactions of LD and BD children are more negative than interactions of regular students. The inconsistent results might be due, in part, to the setting of the investigation. Previous studies were done in nonclassroom, nonstructured settings. In the present study the utilization of a highly structured classroom setting with an accompanying high degree of stimulus control might have acted to minimize differences between groups. Students in BD and LD classes may have been under enough stimulus control to greatly reduce negative peer interactions.

Positive statements between students and peers, and between students and teachers did not correlate, nor did negative statements between students and teachers. However, there was a significant correlation in negative statements between students and peers. This correlation suggests a reciprocal nature of negative interactions between students and peers. Students who interact in a negative manner tend to receive similar negative interactions from other students.

The finding that peer interactions tend to be reciprocal is consistent with previous literature (Charlesworth & Hartup, 1967; Kopstein, 1972; Patterson & Cobb, 1971). However, the finding that teachers did not respond in a reciprocal manner is somewhat surprising. Teachers, unlike parents (Johnson, et al., 1973; Wahl, et al., 1974), do not appear to get trapped as easily in negative interactions with students. Although students, especially BD and LD, emit a high number of negative verbalizations, teachers did not reciprocate with negative statements. This suggests that professional training enables teachers to avoid the interactional pitfalls typical of parents and peers.

Data on the conditional probability of one statement given a previous statement indicated that student responses were similar for BD, LD, and regular students. Also, student verbalizations were similar in response to teachers, aides, and peers. In general, a high probability behavior was the absence of a student response to verbalizations from others. Positive, negative, and neutral teacher and aide verbalizations, and negative and neutral peer verbalizations had a high probability of being followed by no response. This was true for all three groups of students. These results suggest a very short or brief pattern of interactions in the classroom. Chains of three or more verbalizations were very rare. This finding would be expected given the situations and activities surrounding data collection.

Neutral responses by students were also highly probable, especially in response to neutral verbalizations. Neutral verbalizations by all sources, teachers, aides, and peers, were likely to be followed by neutral responses by all three groups of students. The validity of this finding is difficult to discern since previous research has not examined the conditional probability of selected responses to neutral verbalizations. However, the principal of reciprocity suggests that neutral statements would most likely be followed by neutral responses.

The conditional probability of negative responses by students given a verbalization by others was relatively rare. Even negative verbalizations by others were generally followed by no response from students. However, the conditional probability of a negative student response was highest following negative verbalizations. This suggests that negative responses from students to others, although generally rare, were more likely to occur following negative verbalizations as opposed to positive and neutral verbalizations. For instance, BD students were highly likely to emit negative verbalizations in response to negative statements from an aide. This reciprocal responding is not surprising since to respond otherwise would require a degree of self-control typically agreed to be uncharacteristic of BD students. Responding non-reciprocally may very well be the exception rather than the norm, especially in response to negative verbalizations which tend to put individuals on the defensive.

One interesting finding was that there was very little difference between the three groups of students in the conditional probabilities of responses. Likewise, students were consistent in responding across the various sources of interaction (i.e., teachers, aides, and peers). This consistency might be attributed to the highly structured nature of the classroom environment. Interactions in the classroom were typically very brief, and it is likely that lengthy interactions were not encouraged. This brief nature of interactions may have served to minimize differences in conditional probabilities.

Teacher, aide, and peer responses to student verbalizations were very similar to each other and to student responses to others. Teachers, aides, and peers were most likely to not respond to student verbalizations. This was true regardless of whether the student emitted a negative or neutral statement; however, neutral student verbalizations were also highly likely to be followed by neutral responses. The conditional probability of positive and negative responses were very low in most instances. Again, the highly structured nature of the classroom may have served to minimize differences.

One interesting finding regarding the conditional probabilities of a response was that negative verbalizations typically received no immediate verbal response from teachers, aides, and peers. This might suggest that negative verbalizations from students were generally ignored. However, special education students were less likely to behave in this manner. Behavior disordered and LD students were more likely than any other groups to respond to negative verbalizations with a negative response, suggesting that BD and LD students are more likely to respond reciprocally to negative statements.

The summary of frequency and percentage of specific verbalizations yielded some interesting findings. The highest percentage of teacher and aide verbalizations were "instruct" and "question". Positive and negative verbalizations were very infrequent, although of the positive statements, "praise" had the highest percentage of occurrence.

Of the student verbalizations, "answer" and "question" had a high percentage of occurrence as did "instruct" and "neutral" statements to peers. "Disrupt" statements had a high percentage of occurrence also, although the percentage was lower for regular students than for BD and LD students. Positive statements and negative statements other than "disrupt" were very infrequent.

These results suggest that verbalizations in the classroom are limited to a very narrow band. Verbalizations tended to be either of a high frequency or low frequency. Certain patterns of interaction tend to be repeated frequently with little deviation. For example, one frequent pattern of interaction was an "instruct" or "question" from the teacher to which the student responded with an "answer". Again, to a large extent, this finding may be the result of the situation and conditions under which the data were collected. Data during less academic periods might indicate more varied interaction patterns and a wider range of verbalizations.

Implications for Educators

The results have a number of implications for current educational practices. In one area, verbal interactions, there appears to be many similarities between BD and LD students in terms of general classes of verbalizations. Both BD and LD students differ from regular education students in the emission of negative verbalizations. Likewise, both BD and LD students have more of a tendency than regular students to reciprocally respond to negative verbalizations. The findings would suggest that because of the similarities between BD and LD students, teachers in these two areas of exceptionality need similar training in the types of skills required to deal with these behaviors. These findings would support a noncategorical approach to teacher training in courses such as behavior management.

The findings would further suggest that negative verbalizations should be the focus of intervention in BD and LD classrooms. If BD and LD students are to approximate the behavior of students in regular classrooms, negative verbalizations will need to be decreased.

It appears as though all three types of classrooms could benefit from increased reliance on positive verbalizations. The infrequent nature of positive verbalizations in the classrooms investigated in this study suggest that steps could be taken to make the classroom climate and atmosphere more positive. Moreover, a widely acceptable and effective behavior management tool is being under utilized, as student behavior was rarely praised.

It is encouraging to find through both the correlational and conditional probability data that teachers did not respond to negative student responses in a reciprocal manner. Apparently, professional training has enabled teachers to avoid an interactional pitfall characteristic of many parents and peers. Moreover, teachers' ability to ignore negative verbalizations demonstrates the utilization of an accepted behavior management technique (i.e., extinction).

Limitations and Weaknesses

Some findings of the present study should be cautiously interpreted. The results regarding positive verbalizations are difficult to interpret because of limited data. Although the data probably accurately reflects the rate of positive verbalizations in the classroom, analysis of reciprocity of positive statements is hindered by the small sample of events.

Conclusions regarding interactions in the classroom are also limited by the nature of the data. Nonverbal behaviors, which contribute a great deal to social interactions, were not investigated. Likewise, the present data collection procedures were limited in the analysis of the appropriateness, inappropriateness, and intensity of the interactions. For example, at times, some of the neutral verbalizations may have been inappropriate because of the situation in which these occurred. The data collection procedures did not make allowances for these situations.

Because the present research was undertaken as a field study, complete control over certain variables was impossible to achieve. Although steps were taken to make the experimental settings as similar as possible, variables such as size of the classroom and number of students could not be controlled. The exact nature of the academic activities might have also varied somewhat. The extent of data collection in math lessons as opposed to reading lessons is unknown, and the effects of this uncontrolled variable is difficult to discern.

Finally, interpretation of the results should be considered in light of the observer effect. Observation was not conducted under blind conditions and, consequently, both teachers and students knew they were being observed. Previous research (Zeigiob et al., 1975) has indicated that subjects cognizant of being observed tend to present themselves in the most positive manner. Applied to the present study, this research would suggest that the rate of negative verbalizations and reciprocity in response to negative statements may have been under estimated.

Recommendations for Future Research

In a number of instances, it appeared as though the setting of the experiment might have influenced the results. In particular, the setting might have served to minimize differences between groups in interactions with peers, in conditional probabilities, and in patterns of interactions. Future research might be designed to investigate the effect of the setting. A systematic replication might be conducted during less structured classroom activities, such as free time or activities outside the classroom.

Given the high degree of similarity between the verbal interactions of BD and LD students, further research might investigate similarities and differences in other areas. For example, recent research has shown that LD students display deficits in certain communication skills (Bryan, Donahue, & Pearl, 1981; Bryan, Donahue, Pearl, & Sturm, 1981; Spekman, 1981). Behavior disordered students may also exhibit similar communication deficits. Likewise, students might be compared on the quality of their interactions, their length of utterences, or the severity of their negative verbalizations. It is possible that what distinguishes BD and LD students is not their rate of negative interactions but the intensity and severity of the negative verbalizations.

Although negative verbalizations were generally ignored, they continued at a high rate. This finding would suggest that negative verbalizations are on an intermittent schedule of reinforcement by the teacher, or they are maintained by reinforcers other than teacher attention. Future research might focus on variables maintaining high rates of negative verbalizations and effective intervention techniques for reducing the rate of negative verbalizations.

The effects of increasing positive verbalizations by teachers might also warrant further research. It could be hypothesized that an increase in positive verbalizations by teachers might result in an increase in positive student verbalizations because of the model provided by the teacher, or possibly as a result of the principles of reciprocity. An increase in positive verbalizations, especially praise, might also influence the rate of negative verbalizations. By strategically praising appropriate academic behaviors such as on task, the rate of disruptive and complaining statements might be reduced.

Finally, future research might focus on both verbal and nonverbal behavior. Nonverbal behavior plays an important role in social interactions, and has been found to influence the behavior of others (Rosenfield, 1967). It is likely that many inappropriate behaviors of BD and LD students are nonverbal. Investigators could examine the similarities between BD and LD students' nonverbal behaviors. The inclusion of nonverbal behaviors might also give a more accurate reflection of the reciprocal nature of interactions. Data on the conditional probability of specific positive and negative nonverbal behaviors could provide interesting and informative results.

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Appendixes

Appendix A

Consent Forms

THE UNIVERSITY OF KANSAS

Department of Special Education
College of Health Sciences and Hospital
39th and Rainbow Blvd., Kansas City, Kansas 66103
(913) 588-5955
(913) 588-4524

Consent Statement

I am presently involved in conducting an investigation in the Kansas City, Kansas Public Schools. The study and procedures have been approved by both the University of Kansas and Kansas City Kansas Public Schools which support the protection of rights of individuals participating in research projects. The following information is provided to help you understand the purpose of the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time.

> The study will investigate similarities in children's verbal interactions. The procedures will consist of observing your child in the classroom and recording the verbal interactions made to and by your child. Because children behave differently when they know they are being observed, we do not plan to inform your child that s/he is being observed. The procedure will not interfer with the child's performance, and it will in no way be harmful to the child. It is hoped that the study will aid in correcting harmful interaction patterns and will provide information which might help teachers to deal with different types of student interactions. However, no specific results have been claimed or promised.

Your participation is solicited, but strictly voluntary. Do not hesitate to ask any questions about the study. Be assured that your name will not be associated in any way with the research findings. We appreciate your cooperation very much.

Sincerely,

Steven R. Moore	Richard L. Simpson
Co-principal Investigator	Co-principal Investigator
Department of Special Education	Department of Special Education

I hereby give permission for ______________________________ to take

part in this study. ____________________________________
Parent/Guardian

A copy of this consent form is available upon request

Main Campus, Lawrence
College of Health Sciences and Hospital, Kansas City and Wichita

THE UNIVERSITY OF KANSAS

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College of Health Sciences and Hospital
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> The study will involve taking data on behavior in the classroom. Because your knowledge of the intent of this study might bias the results, you will not be fully informed of the nature and intent of the study. However, the experiment will not be psychologically or physically harmful or risky to yourself or your students. Although the results of this study will be made public, your identity and the identity of your students will be kept completely confidential.

Your participation is solicited, but strictly voluntary. Although you can not be fully informed about the study, do not hesitate to ask any questions about the study. Be assured that your name will not be associated in any way with the research findings. We appreciate your cooperation very much.

Sincerely,

Steven R. Moore	Richard L. Simpson
Co-principal Investigator	Co-principal Investigator
Department of Special Education	Department of Special Education
University of Kansas	University of Kansas

Signature of subject agreeing to participate

A copy of this consent form is available upon request

Main Campus, Lawrence
College of Health Sciences and Hospital, Kansas City and Wichita

Appendix B

Data Sheet

DATA SHEET

15 second intervals

Observer____________________
Target B____________________
Date____________________
Time____________________

S-student
T-teacher
P-peer
/-no behavior
∿-continue
no subscript-no response

0-neutral
1-praise
2-assist
3-instruct
4-answer
5-question
6-sympathy

7-disapprove
8-disrupt
9-command
10-complain
11-defensive
12-refuse
13-threaten

Appendix C

Target Behavior Definitions

Target Behavior Definitions

Positive Behaviors

Praise - verbal statements which applaud, commend, or reinforce another persons' verbalizations or behavior. Examples of this behavior include, "thank you", "that's nice", "I like your picture", "that's right", "correct", "good".

Assist - verbal statements which help another person without the person's request for help. Examples include, "Let me help you", "You can use mine".

Sympathy - verbal statements which show concern, compassion, pity, or empathy for another person. Examples include, "I'm sorry", "that's too bad", "you look tired".

Neutral Behaviors

Instruct - verbal statements which inform or teach another person, e.g., giving directions, explaining academic material.

Answer - verbal statements made in response to another person's question.

Question - verbal statements which inquire or request help from another person. Examples are the who, what, when, where, and how statements.

Neutral - verbal statements which provide information but are not answers to a question. Examples include, "you have my pencil", "that's mine", "I'm finished", "good morning", "I thought spiders were insects".

Negative Behaviors

Disapprove - verbal statements which find fault or criticize another person, e.g., "that's bad", "I don't like you", "you can't do that".

Disrupt - verbal statements such as yelling, talking out, and teasing which interfere with another person's performance.

Command/Demand - verbal statements which give an order, dictate or attempt to control others (e.g., "Do this", "Go away", "Give me that").

Complain - verbal statements which express pain or displeasure such as whining and grumbling (e.g., "I can't do this", "This is hard", "I don't feel good", "Johnny won't leave me alone").

Defensive - verbal statements made to defend oneself. Examples include, "I can do that", "mine is better", "I'm real smart".

Refuse - verbal statements which negate, reject, or show non-compliance (e.g., "No", "I won't do it", "Forget you", "Go to hell").

Threatening - verbal statements which express intent to hurt, destroy, punish, or injure. Examples include, "I'll hit you", "you better stop", "if you don't do this then ...").